

Nanotechnology

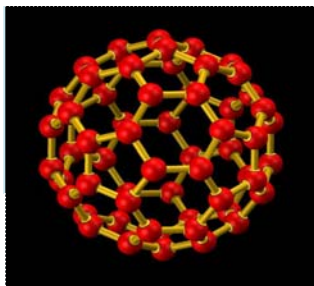
Centre of Nanotechnology

Centre of Nanotechnology (CNT) was established in December 2005 as one of the Centres of Excellence. The faculty of the Centre, drawn from different departments, is involved in developing state-of-the-art facilities at the institute and is vigorously pursuing interdisciplinary research on various current aspects of nanoscience and nanotechnology.

In view of the global impact and vast potential of nanotechnology, CNT has initiated an M.Tech. program in this area at IITR. This program is aimed at providing the basic know how of various concepts of nanoscale materials, their novel properties, applications and future perspectives. A number of electives have been designed to impart knowledge on physics, chemistry, biotechnology, modeling and simulation, and various technological aspects of nanomaterials.

Teaching Scheme

M.Tech. (Nanotechnology)



- Nanoscale Materials
- Advanced Mathematics
- Nanoscale Modeling and Simulation
- Physics of Nanomaterials
- Supramolecular Chemistry of Nanomaterials
- Nanomaterials & Technology
- Structural Analysis of Nanomaterials
- Technology of Nanostructured Fabrications
- Mechanical Behavior of Nano and Amorphous Materials
- Nanobiotechnology
- Transport Phenomena
- RF and Microwave MEMS
- Molecular Spectroscopy
- Characterization of Materials
- Advanced Metallographic Techniques
- Advanced metallurgical Thermodynamics & Kinetics

Major areas of research

- Synthesis of Nanocolloids/ Quantum Dots/ Rods/ Wires
- Nanocomposites/ Nanobiotechnology
- Nanosurface Engineering
- Modelling & Simulation
- Superhard Nanocomposite Coatings
- Nanocrystalline Thin Films & Nanostructures
- Nanophotochemistry & Photophysics

Equipment Facilities Available

- Transmission Electron Microscope with EDS
- Field SEM with EDS
- Scanning Probe Microscope
- 500 MHz FT-NMR Spectrometer
- Super Conducting Quantum Interference Device (SQUID)
- X-ray diffractometer for Powder
- Single Crystal X-ray Diffractometer
- Fluorescence Lifetime System
- Vibrating Sample Magnetometer
- Thermal Analysis System –DTA/TGA
- Mössbauer Spectrometer
- UV-VIS-NIR Spectrophotometer
- Zeta Probe
- Differential Scanning Calorimeter
- LCR Meter
- UV-VIS-NIR Spectrofluorophotometer
- Surface Profiler
- Upright Microscope

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