

## **NSE-921**

### **Selected Topics in Nanotechnology**

**Credit Hours:** 3

**Prerequisites:** Nil

#### **Course Objectives:**

- To provide an understanding on selected state of the art concepts/techniques/processes/tools/applications related to nanoscience and engineering

#### **Course Contents:**

- Nano drug delivery and bio nanoimaging
- Synthesis, functionalization and bio-medical applications of Gold, Titania, Zinc Oxide and related nanomaterials
- Materials Chemistry and chemistry leading to interactive nanomaterials
- Scanning probe techniques
- Advances in aligned carbon materials
- Advances in bionanoelectronics
- Use of 2 D Nanomaterials

#### **Course Outcomes:**

The students will get an in depth understanding on the selected and state of the art areas/topics related to nanoscience and engineering. The student will be able to use this knowledge in practical applications/research in nanoscience and engineering.

#### **Recommended Books:**

- Bio nanotechnology, Elisabeth S. Papazoglou, Aravind Parthasarathy, Morgan & Claypool, 2007.
- Molecular Chemistry of Sol-Gel Derived Nanomaterials, Robert Corriu and Nguyen Trong Anh, John Wiley & Sons, Ltd. 2009.
- [Selected Topics in Nanoscience and Nanotechnology](#), Andrew T. S. Wee, World Scientific Publishing Company, 2009.
- [Aligned Carbon Nanotubes: Physics, Concepts, Fabrication and Devices](#), Zhifeng Ren, Yucheng Lan, Yang Wang (auth.), Springer Berlin Heidelberg, 2013.
- [Bionanoelectronics: Bioinquiring and Bioinspired Devices](#), Daniela Dragoman, Mircea Dragoman, Springer, 2012.