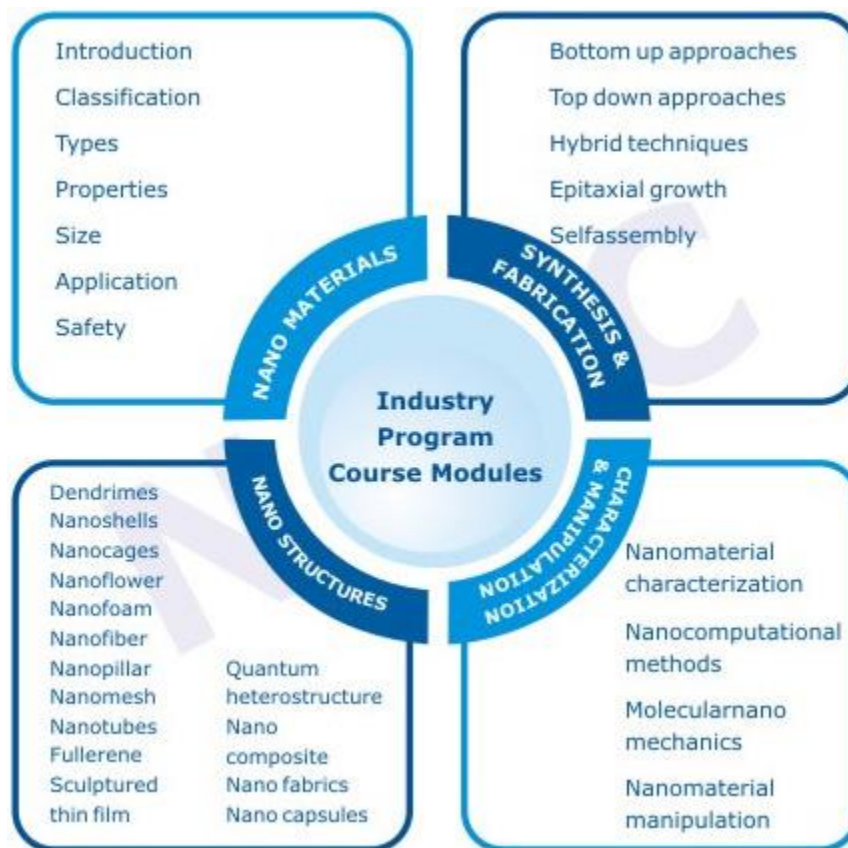


# PROGRAM STRUCTURE

## Industry Program in Nanotechnology

The course comprises of four assessed modules, and an individual research project.

This structure combines flexibility with integration of the separate components right from the fundamental level to the high-end applications thereby providing a holistic view of the whole gamut of Nanotechnology. This structure combines flexibility with integration of the separate components right from the fundamental level to the high end applications there by providing a holistic view of the whole gamut of Nanotechnology.



### Module 1: Profit from Nanotechnology- Applications of Nanotechnology in Various Sectors

- How Will Nanotechnology Affect Us? –PART 1
- How Nanotechnology Will Affect Us? - Part 2
- Applications of Nanotechnology in Various Fields
- Nanotechnology in Tissue Engineering
- Nanotechnology in Electronic Industry
- Nanotechnology in Chemical Industry

- Nanotechnology in Medical Industry
- Nanotechnology in Automobiles
- Nanotechnology in Agriculture Industry
- Nanotechnology in Textile

### **Nanotechnology Videos**

- Applications of Nanotechnology
- Nanorobots
- Nanomedicine

### **Web-links**

- Applications of Nanotechnology-1 file
- Applications of Nanotechnology-2 file
- Applications of Nanotechnology-3 file

### **Module 2: Nano Materials -Concepts & Fundamentals**

- Lesson: Natural Nanomaterials
- Unit1 - Natural Nanomaterials Resource
- Unit 2- Natural Nanomaterials formed by Animals Resource
- Health Benefits of Nanomaterials Resource
- Industrial Applications of Nanomaterials Resource
- Lesson : Classification of Nanomaterials
- Classification of Nanomaterials Resource
- Lesson: Properties of Nanomaterials
- Unit 1- Properties of Nanomaterials Resource
- Lesson: Applications of Nanomaterials
- Unit 1- Applications of Nanomaterials Resource

### **Nanotechnology Videos**

- Structure and Role of Nanomaterials Resource
- Role of Nanomaterials in Cancer Resource
- Method from Nature for Nanoparticles Production Resource
- Water Resistant Property of Nanoglass Resource
- Nano Magic Resource
- Products of Nanomaterials Resource

### **Web-links**

- Nanomaterials applications file

- Nano Products file
- Synthesis of Nanomaterials file
- nanomaterials in Textiles file

### **Module 3: Nano Structures - Concepts & Fundamentals**

- Lesson: Introduction to Thin Films Resource
- Lesson: Nanocomposites & their Applications Resource
- Lesson: Nanofabrics- Production techniques & Applications Resource
- Lesson: Nanocapsules & their Applications Resource
- Lesson: Dendrimers & their Applications Resource
- Lesson: Nanoshells & their Applications Resource
- Lesson: Nanocages and their Applications Resource
- Lesson: Nanoflowers and their Applications Resource
- Lesson: Nanofoams & their Applications Resource
- Lesson: Nanotubes & their Applications Resource

### **Nanotechnology Videos**

- Introduction to Nanostructures
- Applications of Nanostructures

### **Module 4: Carbon Nanotubes- Technology & Applications**

- Lesson: Introduction to Carbon Nanotubes
- Unit 1- Overview of Fullerene Resource
- Unit 2- Bucky-ball Resource
- Unit 3- Carbon Nanotube Resource
- Lesson: Classifications of Carbon Nanotubes
- Unit 1- Types of Carbon Nanotubes Resource
- Lesson: Properties of Carbon Nanotubes
- Unit 1- Properties of CNTs Resource
- Lesson: Characterization Tools for Carbon Nanotubes
- Unit 1 - Characterization of Carbon Nanotubes Resource
- Lesson: Production Techniques of Carbon Nanotubes
- Unit 1- Techniques to Synthesize Carbon Nanotubes Resource
- Lesson: Specific Application Areas of Carbon Nanotubes
- Unit 1- Applications of Carbon Nanotubes Resource

### **Nanotechnology Videos**

- Introduction to Carbon Nanotubes
- What are Carbon Nanotubes Resource
- C60 Fullerene & Carbon Nanotube Interaction Resource

- How are Carbon Nanotubes made Resource
- How can we see Carbon Nanotubes Resource
- Applications of Carbon Nanotubes
- Carbon Nanotube Electronics Resource
- Carbon Nanotubes in Microchip Resource

#### **Web-links**

- Carbon Nanotubes file
- Carbon Nanotubes -1 file

#### **Module 5: Nano - Synthesis & Fabrication- Concepts & Fundamentals**

- Bottom up Synthesis Techniques Resource
- Top Down Mechanical Energy Fabrication Method Resource
- Top Down Thermal Fabrication Methods Resource
- Top Down High Energy and Particle Fabrication Resource
- Nano-Synthesis Techniques
- Laser Ablation Process Resource
- Nano-Fabrication Techniques

#### **Web-links**

- Nanosynthesis and Fabrication-I file
- Nanosynthesis and Fabrication-II file
- Nanosynthesis and Fabrication-III file
- Nanosynthesis and Fabrication-IV file

#### **Module 6: Nano -Characterization & Manipulation-Concepts & Fundamentals**

- Lesson: Introduction to Characterization and Manipulation Resource
- Lesson: Nanoscale Characterization Techniques Resource
- Lesson: Assisted Characterization Techniques in Nanotechnology Resource
- Lesson: Introduction to Nanomechanics Resource
- Lesson: Applications of Nanomechanics Resource
- Lesson: Introduction to Nanomanipulation Resource
- Lesson: Various Manipulations in Nanotechnology Resource
- Lesson: Introduction to Nanofabrication Resource
- Lesson: Fabrication Techniques in Nanotechnology Resource
- Lesson: Introduction to Nano-Computation Resource
- Lesson : Faceted Melt /Crystal Interfaces Resource
- Lesson: Nano-materials Design for High TC- Ferromagnetism