

NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Surface Engineering of Nanomaterials

Subject Co-ordinator - Prof. Kaushik Pal

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Tribology and Its Classification

Lecture 2 - Friction Tribology

Lecture 3 - Wear and Corrosion

Lecture 4 - Lubrication

Lecture 5 - Effect of Tribology on Surface of Nanomaterials

Lecture 6 - Conventional Surface Engineering

Lecture 7 - Types of Surface Modifications

Lecture 8 - Physical Modifications

Lecture 9 - Chemical Modifications

Lecture 10 - Applications of Surface Engineering towards Nanomaterials

Lecture 11 - Deposition and Surface Modification Methods

Lecture 12 - Physical Vapour Deposition (PVD)

Lecture 13 - Chemical Vapour Deposition (CVD)

Lecture 14 - Advanced Surface Modification Practices

Lecture 15 - Advantages of Deposition for Surface Modification

Lecture 16 - Synthesis, Processing and Characterization of Nano-structured Coatings

Lecture 17 - Functional Coatings

Lecture 18 - Advanced Coating Practices

Lecture 19 - Characterization of Nano-coatings

Lecture 20 - Applications of Nano-coatings

Lecture 21 - Need of Advanced Methods for Surface and Coating Testings

Lecture 22 - Size Dependency in Nanostructures of Nanocoatings

Lecture 23 - Size Effect in Electrochemical Properties of Nanostructured Coatings

Lecture 24 - Size Effect in Mechanical Properties of Nanostructured Coatings

Lecture 25 - Size Effect in Physical and Other Properties of Nanostructured Coatings

Lecture 26 - Thin Films for Surface Engineering of Nanomaterials

Lecture 27 - Sputtering Techniques

Lecture 28 - Evaporation Processes

Lecture 29 - Thin Film Deposition through Gas Phase Techniques

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- Lecture 30 - Liquid Phase Techniques
- Lecture 31 - Microencapsulation Processes
- Lecture 32 - Microencapsulation
- Lecture 33 - Plating of Nanocomposite Coatings - I
- Lecture 34 - Plating of Nanocomposite Coatings - II
- Lecture 35 - Advantages of Microencapsulation over Other Conventional Methods
- Lecture 36 - Current Trends in Surface Modification of Nanomaterials - Part-1
- Lecture 37 - Current Trends in Surface Modification of Nanomaterials - Part-2
- Lecture 38 - Current Trends in Surface Modification of Nanomaterials - Part-3
- Lecture 39 - Modified Nanomaterials
- Lecture 40 - Main Problems in Synthesis of Modified Nanomaterials