

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

NPTEL Video Course - Metallurgy and Material Science - NOC:Techniques of Material Characterization

Subject Co-ordinator - Prof. Shibayan Roy

Co-ordinating Institute - IIT - Kharagpur

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

- Lecture 1 - Introduction to the course and basic principles of image formation
- Lecture 2 - Image formation, resolution, magnification, depth of field and depth of focus
- Lecture 3 - Aberrations in microscopy: General concepts
- Lecture 4 - Introduction, types and image formation in Optical microscopy
- Lecture 5 - Components of optical microscope
- Lecture 6 - Bright field and Dark field modes
- Lecture 7 - Phase contrast optical microscopy
- Lecture 8 - Polarized light microscopy
- Lecture 9 - Differential interference contrast
- Lecture 10 - Fluorescence microscopy
- Lecture 11 - Basic components of electron microscope
- Lecture 12 - Basic components of electron microscope (Continued...)
- Lecture 13 - Basic components of electron microscope (Continued...)
- Lecture 14 - Electron-material interaction
- Lecture 15 - Electron-material interaction (Continued...)
- Lecture 16 - Electron-material interaction (Continued...) and Image formation and contrast generation
- Lecture 17 - Modes of TEM (BF and DF)
- Lecture 18 - Modes of TEM
- Lecture 19 - Modes of TEM (Continued...) and Electron diffraction in TEM
- Lecture 20 - Electron diffraction in TEM
- Lecture 21 - Electron diffraction in TEM (Continued...)
- Lecture 22 - Electron diffraction in TEM (Continued...)
- Lecture 23 - Electron diffraction in TEM (Continued...)
- Lecture 24 - Electron diffraction in TEM (Continued...)
- Lecture 25 - Application of Electron diffraction
- Lecture 26 - Signal generation in SEM
- Lecture 27 - Signal generation in SEM (Continued...)
- Lecture 28 - Signal generation in SEM (Continued...)
- Lecture 29 - Signal generation in SEM (Continued...)

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- Lecture 30 - Signal generation in SEM (Continued...)
- Lecture 31 - Basic components of SEM
- Lecture 32 - Basic components of SEM (Continued...)
- Lecture 33 - Optics of SEM
- Lecture 34 - Optics of SEM (Continued...)
- Lecture 35 - Optics of SEM (Continued...) and analytical detectors
- Lecture 36 - Analytical detectors in SEM
- Lecture 37 - Analytical (WDS) detector and contrast formation in SEM
- Lecture 38 - Imaging in SEM
- Lecture 39 - Imaging in SEM (Continued...)
- Lecture 40 - Imaging in SEM (Continued...)
- Lecture 41 - Imaging in SEM and X-ray diffraction
- Lecture 42 - Continuous and characteristics X-ray spectrum
- Lecture 43 - Characteristics X-ray radiation
- Lecture 44 - Characteristics X-ray radiation (Continued...) and X-ray absorption
- Lecture 45 - X-ray absorption (Continued...)
- Lecture 46 - X-ray absorption and filters
- Lecture 47 - Intensity of diffracted beam
- Lecture 48 - Intensity of diffracted beam (Continued...)
- Lecture 49 - Intensity of diffracted beam (Continued...)
- Lecture 50 - Intensity of diffracted beam (Continued...)
- Lecture 51 - Intensity of diffracted beam (Continued...)
- Lecture 52 - Intensity of diffracted beam (Continued...)
- Lecture 53 - Intensity of diffracted beam (Continued...)
- Lecture 54 - Intensity of diffracted beam (Continued...)
- Lecture 55 - Intensity of diffracted beam (Continued...)
- Lecture 56 - Intensity of diffracted beam (Continued...) and X-ray diffraction profile and analysis
- Lecture 57 - X-ray diffraction profile and analysis
- Lecture 58 - X-ray diffraction profile and analysis (Continued...)
- Lecture 59 - X-ray diffraction profile and analysis (Continued...)
- Lecture 60 - Electron backscatter diffraction (EBSD)