

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

NPTEL Video Course - Physics - N0C:Physics of Linear and Nonlinear Optical Waveguides

Subject Co-ordinator - Prof. Samudra Roy

Co-ordinating Institute - IIT - Kharagpur

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

- Lecture 1 - Wave Equation, Maxwell's equation, Plane wave
- Lecture 2 - EM wave in vacuum, Poynting vector, Maxwell's equation in Dielectric Medium
- Lecture 3 - Poynting Vector, Maxwell's equation in dielectric medium (Continued...)
- Lecture 4 - Total Internal reflection, Evanescent wave
- Lecture 5 - Step-index fiber (SIF), Light guidance in SIF
- Lecture 6 - Light guidance in SIF (Skew Ray), V-Parameter, Discrete Ray
- Lecture 7 - Cutoff wavelength, Fiber characteristics
- Lecture 8 - Fiber Loss, dB units, Dispersion
- Lecture 9 - Dispersion, Ray Path constant
- Lecture 10 - Ray path constant, Ray equation
- Lecture 11 - Ray equation (Continued...)
- Lecture 12 - Ray transit time
- Lecture 13 - Ray transit time (Continued...)
- Lecture 14 - Material dispersion
- Lecture 15 - Material dispersion (Continued...)
- Lecture 16 - Material Dispersion (Continued...), Dispersion Coefficient
- Lecture 17 - Pulse Broadening
- Lecture 18 - Pulse Propagation in Dispersive Medium
- Lecture 19 - Pulse Propagation in Dispersive Medium (Continued...)
- Lecture 20 - Concept of Modes
- Lecture 21 - TE and TM Modes
- Lecture 22 - TE and TM Modes (Continued...)
- Lecture 23 - Modes in Slab waveguide
- Lecture 24 - Modes in Slab waveguide (Continued...)
- Lecture 25 - Modes in Slab waveguide (Continued...)
- Lecture 26 - Modes in Slab Waveguide (Continued...)
- Lecture 27 - Waveguide Dispersion
- Lecture 28 - Physical Understanding of Modes
- Lecture 29 - Power Associated with a Modes

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- Lecture 30 - Modes in an Optical Fiber
- Lecture 31 - Modes in an optical fiber (Continued...)
- Lecture 32 - Modes in an optical fiber (Continued...)
- Lecture 33 - LPlm mode structure
- Lecture 34 - Optical fiber mode morphology (Continued...)
- Lecture 35 - Effective area of mode, Fiber optics components
- Lecture 36 - Directional Coupler
- Lecture 37 - Coupled Mode Theory
- Lecture 38 - Coupled Mode Theory (Continued...)
- Lecture 39 - 3 dB power splitter
- Lecture 40 - Working principle of WDM coupler
- Lecture 41 - Fiber Bragg Grating
- Lecture 42 - Fiber Bragg Grating (Continued...)
- Lecture 43 - Reflectivity Calculation
- Lecture 44 - Reflectivity Calculation (Continued...)
- Lecture 45 - Reflectivity calculation of FBG (Continued...)
- Lecture 46 - Reflectivity calculation of FBG (Continued...)
- Lecture 47 - Reflectivity calculation of FBG (Continued...)
- Lecture 48 - Bandwidth of reflectivity
- Lecture 49 - Basic nonlinear optics
- Lecture 50 - Frequency mixing, Optical Kerr effect
- Lecture 51 - Optical Kerr effect (Continued...)
- Lecture 52 - Self Phase Modulation
- Lecture 53 - Self Phase Modulation (Continued...)
- Lecture 54 - Self Phase Modulation (Continued...)
- Lecture 55 - Pulse propagation in nonlinear waveguide
- Lecture 56 - Pulse propagation in nonlinear waveguide (Continued...)
- Lecture 57 - Pulse propagation in nonlinear dispersive waveguide
- Lecture 58 - Pulse propagation in nonlinear dispersive waveguide (Continued...)
- Lecture 59 - Concept of optical soliton
- Lecture 60 - Concept of optical soliton (Continued...)