NPTEL Video Course - Electrical Engineering - NOC:Fiber Optic Communication Technology

Subject Co-ordinator - Prof. Deepa Venkitesh

Co-ordinating Institute - IIT - Madras

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

Lecture 30 - Setbacks of direct modulation of laser
Lecture 31 - Setbacks of direct modulation of laser
Lecture 32 - Assignment Discussion - Week 3
Lecture 33 - Recap of direction modulation consequences
Lecture 34 - Noise in Lasers
Lecture 35 - Relative Intensity Noise
Lecture 36 - Laser Phase Noise - 1
Lecture 37 - Laser Phase Noise - 2
Lecture 38 - Effect of Laser Phase Noise
Lecture 39 - Electro-optic phase modulation
Lecture 40 - Electro-optic intensity modulator
Lecture 41 - Biasing of MZM
Lecture 42 - Biasing of MZM
Lecture 43 - Line coding schemes and their bandwidth requirements
Lecture 44 - Assignment Discussion - Week 4
Lecture 45 - Introduction to optical Fiber
Lecture 46 - Attenuation in optical fibers
Lecture 47 - Fiber Modes
Lecture 48 - Modes of a step index fiber - 1
Lecture 49 - Modes of a step index fiber - 2
Lecture 50 - Modes of a step index fiber - 3
Lecture 51 - Modes of a step index fiber - 4
Lecture 52 - Modes of a step index fiber - 5
Lecture 53 - Modes and Cut-off conditions
Lecture 54 - Universal b-V curves
Lecture 55 - Modal Profiles in step index fiber
Lecture 56 - Mode Field Diameter
Lecture 57 - Dispersion- Intermodal dispersion derivation
Lecture 58 - Dispersion-Bit rate distance Product
Lecture 59 - Phase Velocity and Group Velocity - 1
Lecture 60 - Phase Velocity and Group Velocity - 2
Lecture 61 - Material dispersion
Lecture 62 - Waveguide dispersion
Lecture 63 - Total Dispersion in optical fiber
Lecture 64 - Polarization mode dispersion
Lecture 65 - Photodetectors concepts
Lecture 66 - p-n and p-i-n Photodetectors
Lecture 67 - Avalance Photodetector
Lecture 68 - Direct detection receiver and sources of noise

Lecture 69 - Quantifying noises in direct detection receivers
Lecture 70 - SNR and Operation Regimes
Lecture 71 - Noise Equivalent power and SNR in APDs
Lecture 72 - Coherent Receivers
Lecture 73 - SNR analysis of coherent receivers
Lecture 74 - Performance Evaluation - 1
Lecture 75 - Performance Evaluation - 2
Lecture 76 - Performance Metrics
Lecture 77 - Performance Metrics
Lecture 78 - Quantum limit of photodetection
Lecture 79 - Optical Amplifier
Lecture 80 - Erbium doped fiber amplifier - 1
Lecture 81 - Erbium doped fiber amplifier - 2
Lecture 82 - Erbium doped fiber amplifier - 3
Lecture 83 - Erbium doped fiber amplifier - 4
Lecture 84 - Link Design - Rise Time Budget
Lecture 85 - Link Design - Case Study
Lecture 86 - Link Design - Passive Optical Network and long haul link
Lecture 87 - Dispersion - Recap
Lecture 88 - Dispersion Compensation - Pulse Propagation with disperison
Lecture 89 - Pulse propagation - 2
Lecture 90 - Dispersion Compensation - Dispersion Transfer Function
Lecture 91 - Dispersion Compensation - Case Study
Lecture 92 - Dispersion COmpensation - WDM and DSP
Lecture 93 - Nonlinear Effects- Nonlinear refractive Index
Lecture 94 - Self Phase Modulation
Lecture 95 - Cross Phase Modulation
Lecture 96 - Scattering Processes in optical fibers
Lecture 97 - Stimulated Brillouin Scattering
Lecture 98 - Stimulated Raman Scattering
Lecture 99 - Components - Directional Couplers
Lecture 100 - Components - VOA, Polariser, Polarisation Controllers
Lecture 101 - Components - Isolator
Lecture 102 - Components - Circulator, Definitions
Lecture 103 - Components - Wavelength filters
Lecture 104 - Components - Arrayed Waveguide Gratings, WSS
Lecture 105 - Balanced Detection
Lecture 106 - Polarisation Diverse Coherent Receiver
Lecture 107 - Phase and Polarisation Diverse Coherent Reciever