BHAI GURDAS INSTITUTE OF ENGINEERING & TECHNOLOGY

Department of Electronics and Communication Engineering

LESSON PLAN

Subject Name: - Optical Fibres and Communication **Subject Code: -** BTEC-602-18

Year: - 3RD **Semester: - 6TH**

Lecture No.	Unit	Date/ Week	Topic	Teaching Aids	Reference
L-1	UNIT 1. Introduction	1st week	Need of Fiber Optic Communications	BLACK BOARD & PPT	Senior J. Optical Fiber Communications & INTERNET
L-2			Evolution of Light wave Systems, Channel Multiplexing	BLACK BOARD & PPT	Senior J. Optical Fiber Communications & INTERNET
L-3			Modulation Formats	BLACK BOARD & PPT	. Keiser G., Optical Fiber Communication
L-4			Optical Communication Systems	BLACK BOARD & PPT	. Keiser G., Optical Fiber Communication
L-5		2nd week	Light wave System Components	BLACK BOARD & PPT	Senior J. Optical Fiber Communications & INTERNET
L-6		2nd week	Optical Fibers as a Communication Channel	BLACK BOARD & PPT	Keiser G., Optical Fiber Communication
L-7		2nd week	Optical Transmitters	BLACK BOARD & PPT	Senior J. Optical Fiber Communications & INTERNET
L-8		2nd week	Optical Receivers	BLACK BOARD & PPT	. Keiser G., Optical Fiber Communication
L-9		3rd week	Geometrical-Optics Description	BLACK BOARD & PPT	Senior J. Optical Fiber Communications & INTERNET
L-10		3rd week	Step-Index Fibers, Graded Index Fibers	BLACK BOARD & PPT	Senior J. Optical Fiber Communications

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L-11		**3rd week**	Wave Propagation; Maxwell's Equations	BLACK BOARD & PPT	Senior J. Optical Fiber Communications & INTERNET
L-12		**3rd week**	Wave Propagation; Maxwell's Equations	BLACK BOARD & PPT	Senior J. Optical Fiber Communications & INTERNET
L-13		**4th week**	Fiber Modes, Single-Mode-Fibers	BLACK BOARD & PPT	. Keiser G., Optical Fiber Communication
L-14	**Unit 2: OPTICAL FIBERS**	**4th week**	Dispersion in Single-Mode Fibers	BLACK BOARD & PPT	. Keiser G., Optical Fiber Communication
L-15		**4th week**	Group Velocity Dispersion, Material Dispersion, Wave guide Dispersion	BLACK BOARD & PPT	Senior J. Optical Fiber Communications & INTERNET
L-16		**4th week**	Higher-order Dispersion, Polarization-Mode Dispersion, Dispersion-Induced Limitations;	BLACK BOARD & PPT	. Keiser G., Optical Fiber Communication
L-17		**5th week**	Basic Propagation Equation, Chirped Gaussian Pulses, Limitations on the Bit Rate	BLACK BOARD & PPT	Senior J. Optical Fiber Communications & INTERNET
L-18		**5th week**	Fiber Bandwidth, Fiber Losses; Attenuation Coefficient,	BLACK BOARD & PPT	Senior J. Optical Fiber Communications & INTERNET
L-19		**5th week**	Material Absorption, Rayleigh Scattering, wave guide Imperfections	BLACK BOARD & PPT	Senior J. Optical Fiber Communications & INTERNET
L-20		**5th week**	Nonlinear Optical effects; Stimulated Light Scattering, Nonlinear Phase Modulation	BLACK BOARD & PPT	. Keiser G., Optical Fiber Communication
L-21		**6th week**	Four Wave Mixing, Fiber Manufacturing; Design Issues, Fabrication Methods, Cables and Connectors	BLACK BOARD & PPT	Senior J. Optical Fiber Communications & INTERNET

L-22	**Unit 3: OPTICAL TRANSMITTERS**	**6th week**	Basic Concepts; Emission and Absorption Rates, p-n Junctions	BLACK BOARD & PPT	Senior J. Optical Fiber Communications & INTERNET
L-23		**6th week**	Non radiative Recombination, Semi conductor Materials	BLACK BOARD & PPT	Senior J. Optical Fiber Communications & INTERNET
L-24		**6th week**	Light Emitting Diodes; Power-current Characteristics	BLACK BOARD & PPT	Senior J. Optical Fiber Communications & INTERNET
L-25		**7th week**	LED spectrum, Modulation Response	BLACK BOARD & PPT	Senior J. Optical Fiber Communications & INTERNET
L-26		**7th week**	LED Structures	BLACK BOARD & PPT	Senior J. Optical Fiber Communications & INTERNET
L-27	**Unit 4: OPTICAL RECIEVERS**	**7th week**	Semi Conductor Lasers; DFB Lasers	BLACK BOARD & PPT	Senior J. Optical Fiber Communications & INTERNET
L-28		**7th week**	Coupled Cavity semiconductor Lasers, Tunable Semiconductor Lasers,	BLACK BOARD & PPT	Senior J. Optical Fiber Communications & INTERNET
L-29		**8th week**	Vertical Cavity Semiconductor Lasers, Laser Characteristics	BLACK BOARD & PPT	. Keiser G., Optical Fiber Communication
L-30		**8th week**	Small & Large Signal Modulation, Spectral Line width	BLACK BOARD & PPT	Senior J. Optical Fiber Communications & INTERNET
L-31		**8th week**	Basic concepts, p-n Photo Diode	BLACK BOARD & PPT	Senior J. Optical Fiber Communications & INTERNET
L-32		**8th week**	p-i-n Photo Diodes, Avalanche Photo Diode	BLACK BOARD & PPT	Senior J. Optical Fiber Communications & INTERNET
L-33		**9th week**	MSM Photo detector	BLACK BOARD & PPT	Senior J. Optical Fiber Communications & INTERNET

L-34		**9th week**	Receiver Design, Receiver Noise; Noise mechanism	BLACK BOARD & PPT	Senior J. Optical Fiber Communications & INTERNET
L-35		**9th week**	Receiver sensitivity; Bit error rate	BLACK BOARD & PPT	. Keiser G., Optical Fiber Communication
L-36		**9th week**	Minimum Receiver Power, Sensitivity Degradation, Receiver Performance.	BLACK BOARD & PPT	Senior J. Optical Fiber Communications & INTERNET
L-37		**10th week**	Overview: System Architecture,	BLACK BOARD & PPT	Senior J. Optical Fiber Communications & INTERNET
L-38		**10th week**	Loss limited Light wave systems, Dispersion limited Light wave systems	BLACK BOARD & PPT	Senior J. Optical Fiber Communications & INTERNET
L-39	**Unit 5: LIGHT WAVE SYSTEMS**	**10th week**	Power Budget, Long Haul systems	BLACK BOARD & PPT	Senior J. Optical Fiber Communications & INTERNET
L-40		**10th week**	Sources of Power Penalty; Model Noise, Dispersive Pulse Broadening	BLACK BOARD & PPT	. Keiser G., Optical Fiber Communication
L-41		**11th week**	Mode Partition Noise, Frequency Chirping	BLACK BOARD & PPT	. Keiser G., Optical Fiber Communication
L-42		**11th week**	Reflection Feedback Noise,	BLACK BOARD & PPT	Senior J. Optical Fiber Communications & INTERNET
L-43		**11th week**	WDM Light wave systems	BLACK BOARD & PPT	Senior J. Optical Fiber Communications & INTERNET
L-44		**11th week**	Optical TDM Systems.	BLACK BOARD & PPT	Senior J. Optical Fiber Communications & INTERNET