DEPTT OF ELECTRONICS AND COMMUNICATION

SUBJECT: - OPTICAL COMMUNICATION SYSTEM (ECE – 415 - F) SEMESTER: - VII

NPTEL Links for the Subject: http://www.nptel.ac.in/downloads/117101054/

Section	Topics	Link
A INTRODUCTION TO OPTICAL COMMUNICATION SYSTEMS	Electromagnetic spectrum used for optical communication	http://www.nptel.ac.in/downloads/117101054/
	Block diagram of optical communication system	
	Basics of transmission of light rays	
	Advantages of optical fiber communication	
B OPTICAL FIBERS	Optical fibers structures and their types	
	Fiber Characteristics : Attenuation, Scattering, Absorption, Fiber Bend Loss, Dispersion	
	Fiber Couplers and Connectors.	
C LED LIGHT SOURCE & LASER LIGHT SOURCE	Light emitting diode : recombination processes	
	The spectrum of recombination radiation	
	LED characteristics	
	Internal quantum efficiency & External quantum efficiency	
	LED structure	
	Lens coupling to fiber	
	Behavior at high frequencies	
	Basic principles of laser action in semi - conductors	
	Optical gain, lasing threshold, laser structures and characteristics	
	Laser to fiber coupling	
	Comparison with LED	
D AVALANCHE AND PIN PHOTODETECTORS	Principles of optical detection	
	Quantum Efficiency, Responsivity	
	General Principles of PIN photodetector	
	Intrinsic absorption	
	Materials and designs for PIN photodiodes	
	Impulse and frequency response of PIN photodiodes, noise in PIN Photodiodes, multiplication process,	
	APD Design, APD bandwidth, APD noise.	