

Lecture Plan

Name of Subject: OPTICAL COMMUNICATION SYSTEMS

Class: B.Tech (ECE)

Semester: 8th

Unit/Section No.	Name of Topic	Number of Lectures Required
1. INTRODUCTION TO OPTICAL COMMUNICATION SYSTEMS	Electromagnetic Spectrum used for optical communication	1
	Block diagram of optical communication system	1
	Basics of transmission of Light rays,	2
	Advantages of optical fibre communication	1
2. OPTICAL FIBERS	Optical fiber structures & their types	2
	Fiber characteristics: Attenuation, scattering, absorption, fiber band loss, Dispersion	2
	Fiber couplers and connectors	2
3. LED LIGHT SOURCE	Light Emitting Diode: recombination process	1
	LED characteristics	1
	Internal quantum efficiency, external quantum efficiency	1
	LED structures	2
	Lens coupling to Fiber	1
4. LASER LIGHT SOURCE	Basic principles of laser action in semiconductors	1
	Optical gain, Lasing threshold	2
	Laser structures and characteristics	2
	Laser to Fiber coupling, Comparison with LED source	2
5. AVALANCHE & PIN PHOTO DETECTORS	Principles of Optical Detection	2
	Quantum efficiency, responsivity	1
	General principle of PIN photo detector	2
	Impulse & frequency response of PIN photo diodes	2
	Noise in PIN photo diodes	1
	Multiplication process, APD bandwidth, APD Noise	2
6. RECENT TRENDS IN OPTICAL	Optical Networking	2
	Network Topologies	2

COMMUNICATION	Optical TDM	2
	Subscriber multiplexing, WDM	2