

Lesson Plan

Name of the Faculty : **Ms Poonam Verma**
Discipline : **Electronics and Communication Engg.**
Semester : **5th**
Subject : **OPTICAL FIBER COMMUNICATION**
Lesson Plan Duration : **Aug-December 2025**

Work Load (Lecture/ Practical) per week (in hours): 03 HOURS (Lecture)03 Hours per Group (PRACTICAL)

1 week	1st lecture	Historical perspective, basic communication systems,	To set up fiber analog link
	2nd lecture	optical frequency range	
	3rd lecture	Electromagnetic spectrum used	
2 week	1st lecture	Principle of light penetration, reflection, critical angle.	To set up optic digital link
	2nd lecture	Advantages and disadvantages of optical communication.	
	3rd lecture	application of fiber optic communication	
3 week	1st lecture	Constructional details of various optical fibers	To measure and calculate numerical aperture of optical fiber
	2nd lecture	Constructional details of various optical fibers	
	3rd lecture	Multimode fibers,	
4 week	1st lecture	Mono-mode fibers,	
	2nd lecture	step index fibers,	
	3rd lecture	graded index fibers,	
5 week	1st lecture	acceptance angle and types of optical fiber cables.	To measure bending losses
	2nd lecture	Optical Fibers cable	
	3rd lecture	connectors	
6 week	1st lecture	splicing techniques	To measure splice and connector losses
	2nd lecture	Absorption Losses	
	3rd lecture	: Scattering Losses	
7 week	1st lecture	, Radiation losses, Connector losses,	
	2nd lecture	a) Bending loses.	
	3rd lecture	Dispersion: Types	
8 week	1st lecture	its effect on data rate	To measure numerical aperture
	2nd lecture	Testing of losses using OTDR(Optical Time Domain	
	3rd lecture	Characteristics of light sources LED	
9 week	1st lecture	Characteristics of light sources LASER	To observe characteristics of optical source
	2nd lecture	principle of operation of LED	
	3rd lecture	types of LED structures	
10 week	1st lecture	Injection laser diode	To observe characteristics of optical detector
	2nd lecture	principle of operation,	
	3rd lecture	different injection laser diodes	
11 week	1st lecture	different injection laser diodes	
	2nd lecture	comparison of LED and ILD.	
	3rd lecture	Characteristics of photo detectors used in optical communication	
12 week	1st lecture	PIN diode	To splice available optical fiber
	2nd lecture	avalanche photo diode (APD),	
	3rd lecture	Noise in Dectectors	
13 week	1st lecture	Types of optical amplifiers	to connect a fiber with connector at both ends
	2nd lecture	principle of operation of SOA	
	3rd lecture	semiconductors amplifiers	
14 week	1st lecture	fiber optical amplifiers	To identify and use various components and tools used in optical fiber communication
	2nd lecture	principle of operation of SOA,types of SOA	
	3rd lecture	EDFA,Raman Amplifiers	

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