

Lesson Plan

Name of Faculty : Balinder Singh, Lecturer

Discipline : ECE

Semester : 5th

Subject : Optical Fiber Communication

Lesson Plan Duration : 16 weeks

Work load (Lecture /Practical) per week (in hours): Lectures - 03, Practical - 04

Week	Theory		Practical	
	Lecture Day	Topic (Including Assignment/ Test)	Week	Topic
1 st	1	Historical perspective, basic communication systems	1 st	To identify and use various components and tools used in optical fiber communication
	2	optical communication		
	3	Electromagnetic spectrum		
2 nd	4	optical fiber communication and its advantages, disadvantage and	2 nd	To set up fiber analog link
	5	Applications		
	6	Principle of light penetration		
3 rd	7	reflection, critical angle	3 rd	To set up fiber analog links
	8	Constructional details of various optical fibers		
	9	Constructional details of various optical fibers		
4 th	10	Multimode and mono-mode fibers	4 th	To set up optic Digital link
	11	Step index and Graded index fibers		
	12	Acceptance angle and types of optical fiber cables		
5 th	13	Optical Fibers cable connectors	5 th	To set up optic digital link
	14	Optical Fibers cable connectors		
	15	splicing techniques (Mechanical, fusion)		
6 th	16	Absorption Losses, Scattering Losses	6 th	To measure bending losses in optical fibers
	17	Radiation losses, Connector losses		
	18	Bending losses, Dispersion: Types and its effect on data rate		
7 th	19	Assignment/Revision	7 th	To measure bending losses in optical fibers
	20	1 st Sessional test		
	21	Principle and Characteristics of LED and LASER used in optical communication		
8 th	22	Principle and Characteristics of LED and LASER used in optical communication	8 th	To observe and measure the splice or

	23	Different type of LED structures used and their brief description		connector loss
	24	Different type of LED structures used and their brief description		
9 th	25	Principle and operation of different Injection Laser diodes	9 th	To observe and measure the splice or connector loss
	26	Principle and operation of different Injection Laser diodes		
	27	Comparison of LED and ILD		
10 th	28	Assignment/Revision	10 th	To measure and Calculate numerical aperture of optical fiber
	29	2 nd Sessional test		
	30	Characteristics of photo detectors used in optical communication		
11 th	31	Characteristics of photo detectors used in optical communication	11 th	To measure and Calculate numerical aperture of optical fiber
	32	PIN diode		
	33	PIN diode		
12 th	34	Avalanche photo diode(APD)	12 th	To observe Characteristics of optical source
	35	Avalanche photo diode(APD)		
	36	Noise in Detector		
13 th	37	Noise in Detector	13 th	To observe Characteristics of optical detector
	38	Types of optical amplifiers		
	39	Semiconductor & fiber optical amplifiers		
14 th	40	Principle and operation of SOA	14 th	To splice the available optical fiber
	41	Types of SOA		
	42	EDFA		
15 th	43	Raman Amplifiers	15 th	To splice the available optical fiber
	44	Comparison of SOA,EDFA and Raman amplifiers		
	45	Assignment/Revision		
16 th	46	3 rd Sessional test	16 th	To connect a fiber with connector at both ends
	47	Revision		
	48	Revision		