Lesson Plan

Name of Faculty : Vikramaditya
Discipline : ECE
Semester : 5th
Subject : Optical Fiber Communication
Lesson Plan Duration : 16 weeks
Work load (Lecture /Practical) per week (in hours): Lectures—03, Practical—03

Week	Theory		Practical	
	Lecture Day	Topic (Including Assignment/ Test	Practical Day	Topic
1st	1	Historical perspective, basic communication systems	1st	To set up fiber analog link
	2	optical frequency range, advantages of optical fiber communication		
	3	application of fiber optic communication		
2nd	4	Electromagnetic spectrum used, Advantages of OFC, Disadvantage of OFC	2nd	To set up fiber analog link
	5	Principle of light penetration		
	6	reflection, critical angle		
3rd	7	Assignment	3rd	To set up optic digital link
	8	Problem Analysis		
	9	Revision		
4th	10	Constructional details of various optical fiber	4th	To set up optic digital link
	11	Multimode and mono-mode fibers		
	12	Step index and Graded index fibers		
5th	13	Acceptance angle and types of optical fiber cables	5th	To measure bending losses in optical fibers
	14	Optical Fibers cable connectors		
	15	splicing techniques (Mechanical, fusion)		
6th	16	Assignment , Problem Analysis	6th	To observe and measure the splice or connector loss
	17	Revision		
	18	Absorption Losses		
7th	19	Scattering Losses	7th	To observe and measure the splice or connector loss
	20	Radiation losses		
	21	Connector losses, Bending loses		
8th	22	Dispersion: Types and its effect on data rate	8th	To measure and calculate numerical aperture of optical fiber
	23	Testing of losses using OTDR (Optical Time DomainReflectometer).		
	24	Assignment ,Problem Analysis		
9th	25	Revision	9th	To measure and

	26	Characteristics of light source used in optical communication		calculate numerical aperture of optical fiber
	27	Characteristics of light source(LED,LASER) used in optical communication, principle of operation of LED		
10th	28	different type of LED structures used and their brief description	10th	To observe characteristics of optical source
	29	Injection Laser diode, principle of operation		
	30	Injection laser diodes		
11th	31	Comparison of LED and ILD, non-semiconductor laser	11th	To observe characteristics of optical detector
	32	Assignment, Problem Analysis		
	33	Revision		
12th	34	Characteristics of photo detectors used in optical communication; and	12th	To splice the available optical fiber
	35	PIN diode		
	36	avalanche photo diode (APD), their brief description		
13th	37	Noise in Detector	13th	To connect a fiber with connector at both ends
	38	Assignment, Problem Analysis		
	39	Revision		
14th	40	Types of optical amplifier	14th	To identify and use various components and tools used in optical fiber communication
	41	Semiconductor & fiber optical amplifier		
	42	Principle of operation of SOA		
15th	43	Types of SOA	15th	To identify and use various components and tools used in optical fiber communication
	44	EDFA		
	45	Raman Amplifier		
16th	46	Comparision of SOA ,EDFA &Raman amplifier	16th	Revision of Experiments
	47	Assignment, Problem Analysis		
	48	Revision		