

**INDIAN INSTITUTE OF INFORMATION TECHNOLOGY
DESIGN AND MANUFACTURING (IIITD&M) KANCHEEPURAM**

INTRODUCTION OF NEW COURSE

Course Title	Fiber Optics in Communication	Course No (will be assigned)				
Specialization		Structure (LTPC)	3	0	0	3
Offered for	UG/PG/Ph.D.	Status	Core <input type="checkbox"/>	Elective <input checked="" type="checkbox"/>		
Faculty	Naveen Kumar	Type	New <input checked="" type="checkbox"/>	Modification <input type="checkbox"/>		
Pre-requisite		To take effect from	January 2013			
Submission date	Oct 2012	Date of approval by Senate				
Objectives	<ol style="list-style-type: none"> To apprise the students about the phenomenon of guided wave propagation and its application in optical communication To develop an understanding of fiber amplifiers and other design considerations in implementation of long haul fiber communication network 					
Contents of the course (With approximate break up of hours)	<p>Basic Principles: Classification of fibers, Numerical aperture, Loss mechanism, Single mode fiber, multimode fiber, ray paths, Pulse dispersion, Material dispersion, Waveguide dispersion. (14)</p> <p>Design Consideration in Fiber Optic Communication: Analog and digital modulation, Noise in detection process, Bit error rate, System design, System budgeting, Attenuation and dispersion limit. (14)</p> <p>Optical Amplification and Dispersion: Dispersion shifting fiber, Dispersion compensating fiber, Fiber amplifiers, Cascading of Amplifiers, OSNR and SNR. (14)</p>					
Textbook	<ol style="list-style-type: none"> R. Ramaswami and K. N. Sivarajan, and Galen Sasaki, "Optical Networks: A practical perspective", Optical Fiber Communications", Elsevier, 2009. G. Keiser, Optical Fiber Communications", McGraw Hill , 2008 					
References	<ol style="list-style-type: none"> Harry Dutton, "Understanding Optical Communications", IBM Redbook, 1998 Jurgen Franz, Optical Communications Components and Systems: Analysis, Design, Optimization, Application, Narosa Publishing House, 2000 Ajoy Ghatak, K.Thyagarajan, "Introduction to Fiber Optics", Cambridge University Press, 1999 					