

COURSE TITLE	TE142446: Optical Communication System and Network Credits: 2 ELECTIVE COURSE
LEARNING OBJECTIVES	To study optical media characteristics, application of optical in communication system and design of optical communication networks as transmission backbone and access networks.
COMPETENCY	The students will understand the following aspects: <ul style="list-style-type: none"> • Basic principal and characteristics of optical media • Testing and measurement techniques in optical communications • Performance analysis of optical communication systems The students will be capable to design optical application in communication system and networks.
SUBJECTS	<ul style="list-style-type: none"> • Principle of optical communications, including the basic principle of the optical, Optical waveguides: Electromagnetics, wave nature of light. • Introductions to optical components, optical sources and amplifiers, light detectors, coupler, connectors, distribution networks and other optical components. • Signal distributions and integrations, modulation and multiple access, design of optical transmitters and receivers, coherent optical communications, • Performance of optical communication system, Attenuations of signals, Signal delays, signal distortions. • Optical testing and measurements: techniques and apparatus, physical and mechanical testing, optical power measurement, light wavelength, spectrum measurements. • Trends in Optical Communications (WDM, DWDM, EDFA, Photonic Switching), Applications of optical communications.
MAIN REFERENCES	<ul style="list-style-type: none"> • Gerd Keiser, <u>Optical Fiber Communications</u>, McGraw-Hill, 2005. • Joseph C. Palais, <u>Fiber Optic Communications</u>, , Prentice-Hall, 2005.
OPTIONAL REFERENCES	<ul style="list-style-type: none"> • Robert J.Hoss, <u>Fiber Optic Communications Design Handbook</u>, Prentice Hall, 1990. • D.K. Mynbaev , S.C. Gupta and Lowell L. Scheiner, <u>Fiber Optic Communications</u>, PearsonEducation, 2005. • S.C.Gupta, <u>Text Book on Optical Fibre Communication and its Applications</u>, PHI, 2005. • Govind P. Agarwal, <u>Fiber Optic Communication Systems</u>, John Wiley, 2004.