

GUJARAT TECHNOLOGICAL UNIVERSITY

M.E

Communication Engineering

Subject Name: **Fiber Optic Communication**

Sr.No	Course content
1	Introduction, propagation of light, propagation of light in a cylindrical dielectric rod, Ray model, wave model. Different types of optical fibers, Modal Analysis of a step index fiber.
2	Optical channel Modeling – Signal degradation on optical fiber due to dispersion and attenuation. Fabrication of fibers measurement techniques like OTDR
3	Optical sources – LEDs and Lasers, Photo-detectors – Pin-detectors, detector responsively noise, Optical link design – BER calculation, quantum limit, power panelities.
4	Optical switches – coupled mode analysis of directional couplers, electro-optic switches.
5	Nonlinear effect in fiber optic links. Concept of self-phase modulation, group velocity dispersion and soliton based communication. Optical amplifiers – EDFA, Raman amplifier and WDM systems.

Reference Books:

1. J. Keiser, Fiber Optic Communication, McGraw-Hill
2. J. Gower, Optical Communication systems, Prentice Hall, India.
3. G. Agrawal, Nonlinear fiber optics, Academic Press.
4. G. Agrawal, Fiber optic Communication systems, John Wiley and sons.
5. J. Senior, Optical Fiber Communication.