Unit- I Fiber-Optic Light Sources

Unit- II Fiber-Optic Light Detectors
Brief description on the principle of optical detectors, photodetector noise, Noise sources, signal-to-Noise ratio, Detector response time, Depletion layer photocurrent, Response time, Avalanche multiplication noise.

Unit- III Optical Fiber Connection
Joint loss, Multi mode fiber joints, Singe mode fiber joints, Fiber splices, Fusion splices, Mechanical splices, Multiple splices, Fiber connectors, Cylindrical ferrule connectors, Biconical ferrule connectors. Double eccentric connectors, Duplex fiber connectors, Expanded beam connectors

Unit- IV Optical Couplers and Optical Amplifiers
Fiber couplers Three port couplers, Four port couplers, Star couplers, WDM couplers. Optical amplifiers, Semiconductor laser amplifiers, Fiber amplifiers, Rare earth doped fiber amplifiers, Raman fiber amplifiers, Brillouin fiber amplifiers.

Unit- V Integrated Optics
Integrated optical devices, Beam splitters, Directional couplers, switches, Modulators, Periodic structures for filters and injection lasers, Opto-electronic integration, Optical bistability and digital optics, Optical computation.

Unit- VI Optical Sensors and Measurements
Optical sensors intrinsic & extrinsic, Intensity, phase and polarization based sensors, principles of pressure, temperature, displacement and velocity measurements.

Unit – VII Components of fiber optic Networks
Overview of fiber optic networks, Transreceiver, semiconductors optical amplifiers, couplers/splicers, wavelength division multiplexers and de-multiplexers, filters, isolators and optical switches. Fiber Optic Networks:

Unit – VIII Fiber Optic Networks
Basic networks, SONET/SDIT, Broad cast and select WDM Networks, wavelength routed networks, optical CDMA.
Text Books:

2. J.M. Senior, Optical Fiber Communications Principles and Practice, PHI.
3. A. Ghatak & K. Thyagarajan “Optical Electronics”.
5. WDM Optical Networks – C. Siva Ram Murthy and Mohan Guru Swamy, PHI.
6. Fiber Optics Communications – Harold Kolimbiris (Pearson Education Asia)

Reference Books: