

SYLLABUS :-

Pre-requisites: EC21007Optical fibres: Propagation & Geometrical optics approach, Wave theory approach; Fibre loss mechanisms and bandwidth; Fibre dispersion mechanisms: Intermodal and intramodal (chromatic) dispersions, Polarization mode dispersion; Fibre nonlinearities: SPM, CPM, FWM, SBS, SRS, Soliton propagation; LEDs: Direct bandgap semiconductors, Spontaneous emission, LED structures, Internal quantum efficiency, Linearity, Radiation pattern and spectra, Modulation characteristics, Transient response; Lasers: Stimulated emission and lasing, Laser structures, Radiation pattern and spectra, Narrow-linewidth lasers, Modulation characteristics: Threshold current and its temperature sensitivity, Turn-on delay, Linearity; Photodetectors & PIN and APD: Photodetection principles, materials and structures, response time, noise sources; Power launching and coupling: Optical fibre connectors, Optical couplers; Introduction to WDM components: Fabry Perot and Bragg gratings, Multilayer dielectric thin film filters, Mach-Zehnder interferometers, multiplexers, AWG; Optical amplifiers: Semiconductor amplifiers, Erbium-doped fibre amplifiers, Raman amplifiers.