SUBJECT NO-EC60023, SUBJECT NAME- OPTICAL COMMUNICATION

LTP- 3-1-0,CRD- 4

SYLLABUS :-

Pre-requisites: EC21002 and EC31002Introduction to optical communications systems, Brief overview of optical fibres, sources and photodetectors; Optical transmitters: LED driver circuits: saturated transistor and emitter-coupled configurations, Laser driver circuits Ã¢ÂÂ mean and peak power control circuits, temperature control circuits; Optical receivers using direct detection: PIN-based receivers, APD-based receivers, Receiver noise processes, Receiver circuits: preamplifiers - Transimpedance and high-input-impedance amplifiers; Digital optical communication links: BER in quantum limit, BER analysis for PIN-based and APD-basedreceivers in presence of shot and thermal noise components, Link design Ã¢ÂÂ Power budget and rise-time budget, Line coding schemes; SONET/SDH: Limitations of PDH multiplexing, SONET/SDH layers, SONET/SDH frame structure, SONET/SDH physical layer, Elements of SONET/SDH infrastructure; Analog optical communication links: RIN, SNR analysis and limiting conditions, Multichannel AM and FM, Subcarrier multiplexing; Elements of coherent optical communication systems: Fundamental concepts and requirements for lasers, Frequency alignment and polarization control schemes, PSK, FSK, DPSK generation and demodulation techniques.