

TELEMETRY AND REMOTE CONTROL

Code : EI 701

Credits : 4

Module I

Purpose of telemetry, basic scheme, voltage, current and frequency telemetry, line length limitations

Concepts of Information transfer, bits, symbols, codes -source, line, channel, BCD, ASCII, BAUDOT, AMI, CMI, Manchester, HDBM, Block, Differential, Hamming, Conduction

Module II

Modulation codes: PAM, PFM, PTM, PCM 2

Bit error rate, Inter symbol, noise, parity checking 3

Review of modulation and multiplexing: FM-AM, FM-FM, PAM-AM, PAM-FM, PCM-AM, etc. Quantization and conversion methods, error in quantization, bandwidth consideration

Module III

FDM systems, IRIG standards in FDM systems in FDM telemetry, SCO's, Mux and Demux circuits, Detectors and Demodulators, Pulse averaging, Quadrature FM and PLL, Mixers

TDM systems (architecture)- TDM- PAM, PAM- PM, TDM- PCM systems, synchronization, PCM generation, differential PCM, PCM reception and detection

Module IV

Modems, Digital modulation and Shift-keying, FSK, PSK, DPSK, QPSK, QAM, Modem Protocols

Satellite telemetry, TT and C services, subsystems, The earth station

Module V

Fiber optic Telemetry- The Fibre as transmission medium, Interconnections, Repeters, Sources, Dectors, WDM

Remote control: concept and example from a typical industrial siteration