7th Semester	REI7D002	Telemetry	L-T-P 3-0-0	3 Credits

Module I: (12 Hours)

Purpose of telemetry, basic scheme, voltage, current and frequency telemetry, Concepts of Information transfer, bits, symbols, codes -source, line, channel, BCD, ASCII, BAUDOT, AMI, CMI, Manchester, HDBM, Block, Differential, Hamming, and Convolution.

Module II: (14 Hours)

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: (06 Hours)

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: (04 Hours)

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: (04 Hours)

Fiber optic Telemetry- The Fibre as transmission medium, Interconnections, Repeters, Sources, Dectors, WDM Remote control: concept and example from a typical industrial siteration

Books:
[1]   D. Patranabis, Telemetry principles, TMH, New Delhi
[2]   E. L. Gruenberg, Handbook of Telemetry and Remote control, Mc Graw Hill
[3]   Modern Digital and Analog Communication Systems - B. P. Lathi, Oxford University Press
[4]   Swobada G – Telecontrol Method and Application of Telemetering and Remote Control, Von Nostrand, 1971