

PEI7J003 SATELLITE COMMUNICATION

University level: 80%

Module - I (12 Hours)

Introduction to state of satellite communication: Orbital mechanics and parameters, look angle determination, Launches and Launch vehicle, Orbital effects in communication system performance. Attitude and orbit control system(AOCS), TT&C , Description of spacecraft System - Transponders,

Equipment reliability and space qualification.

Satellite Link Design: Basics of transmission theory, system noise temperature and G/T ratio, Uplink and Downlink design, design of satellite links for specified (C/N) performance.

Module - II(10 Hours)

Analog telephone and television transmission: Energy dispersal, digital transmission Multiple Access: Multiplexing techniques for satellite links, Comprehensive study on FDMA, TDMA and CDMA. Spread Spectrum Transmission and Reception. Estimating Channel requirements, SPADE, Random access

Module - III (12 Hours)

Earth station Technology: Earth station design, Design of large antennas - Cassegrain antennas, optimizing gain of large antenna, antenna temperature, feed system for large cassegrain antennas,

Design of small earth station antennas: Front fed paraboloid reflector antennas, offset fed antennas, beam steering, Global Beam Antenna, equipment for earth station.

Text Books:

1. *Satellite Communication by T. Pratt, C. Bostian. 2nd Edition, John Wiley Co.*

Reference Books:

1. *Digital Communication with Satellite and Fiber Optic Application, Harlod Kolimbins, PHI*
2. *Satellite Communication by Robert M. Gagliardi, CBS Publisher*
3. *R N Mutagi, Satelite Communication, Oxford University Press*