2nd Semester

SATELLITE COMMUNICATION SYSTEM

Module: 1 **(8 Hours)**

Satellite Communication Technology Satellite orbits, Satellite constellation and ISL, orbital parameters, look angle determination, launching procedures. Spacecraft subsystems - Attitude and orbit control, power, TT & C, communication and antennas.

Module: 2 **(8 Hours)**

Earth station design - Digital transmitter and receiver, antenna and beam steering techniques. Link Design Digital satellite link analysis and design for FSS and BSS - link budget and Eb/No calculations.

Module: 3 **(6 Hours)**

Performance impairments - Noise, interference, propagation effects and frequency considerations. Intermodulation and back off - SPADE system.

Module: 4 **(10 Hours)**

Access Techniques FDMA concept- TDMA concept - Frame and burst structure - Frame acquisition and synchronization - Satellite Switched TDMA system. CDMA concepts - DS and FH System acquisition and Tracking. Audio broadcasting via satellite – World Space Services throughTeledesic, LEO system and Glob star.

Textbooks:

1. Tri T. Ha, Digital Satellite Communication Systems Engineering, McGraw Hill, 1990.

2. Wilbur L. Pritchard, Henri G. Suyderhoud, and Robert A. Nelson, Satellite Communication System Engineering, 2nd Edn., Pearson Education, New delhi. Recommended Reading:

3. Pratt and Bostain, Satellite Communication, John Wiley and Sons, 1986.

4. M. Richharia, Mobile Satellite Communications – Principles and Trends, Pearson Education, 2003.

5. Robert.M.Gagliardi, Satellite Communication, CBS Publishers