

Topics of satellite communication system(Ph306)

1. Basic Principles

- 1.1 General features
- 1.2 frequency allocation for satellite services
- 1.3 properties of satellite communication systems

2. Satellite Orbits

- 2.1 Introduction to orbital dynamics
- 2.2 orbital characteristic
- 2.3 satellite spacing and orbital capacity
- 2.4 angle of elevation, eclipses
- 2.5 launching and positioning
- 2.6 satellite drift and station keeping

3. Satellite Construction (Space Segment)

- 3.1 Introduction
- 3.2 attitude and orbit control system
- 3.3 telemetry
- 3.4 tracking and command
- 3.5 power systems
- 3.6 communication subsystems
- 3.7 antenna subsystem
- 3.8 equipment reliability and space qualification

4. Satellite Links

- 4.1 Introduction
- 4.2 general link design equation
- 4.3 system noise temperature
- 4.4 uplink design
- 4.5 downlink design
- 4.6 complete link design
- 4.7 effects of rain

5. Earth Station

- 5.1 Introduction
- 5.2 earth station subsystem
- 5.3 different types of earth stations

- 5.4 Earth station Antenna
- 5.5 Earth station Antenna types
- 5.6 Pointing/Tracking

6. The Space Segment Access and Utilization

- 6.1 Introduction
- 6.2 space segment access methods
- 6.3 TDMA, FDMA, CDMA
- 6.4 assignments methods

7. The Role and Application of Satellite Communication

- 6.1 Flyaway antenna
- 6.2 SNG antenna
- 6.3 on the move satellite antenna
- 6.4 maritime antennas
- 6.5 TVRO antenna.

Reference:

- SATELLITE COMMUNICATIONS SYSTEMS Fifth Edition, Systems, Techniques and Technology , Copyright 1986, 1993, 1998, 2002 This edition first published 2009 , 2009 John Wiley & Sons Ltd