PANIPAT INSTITUTE OF ENGINEERING & TECHNOLOGY

Department of Electronics & Communication Engineering

LESSON PLAN

Subject Name: - Satellite Communication **Subject Code: - ECP-24A**
Year: - 4th **Semester: - 8th**

Lecture No	Unit No	Topic	References
L 1	UNIT-I	Introduction to the subject SC: About satellites, orbits.	Satellite Communications by Timothy Pratt, Wiley India
L 2		Orbital mechanics, kepler's law	Satellite Communications by Timothy Pratt, Wiley India
L 3		Location of satellite in the orbit w.r.t earth	Satellite Communications by Timothy Pratt, Wiley India
L 4		Orbital elements, look angle determination	Satellite Communications by Timothy Pratt, Wiley India
L 5		Sub satellite point, azimuth angle calculation	Satellite Communications by Timothy Pratt, Wiley India
L 6		Elevation angle calculation, longitudinal changes	Satellite Communications by Timothy Pratt, Wiley India
L 7		Inclination changes, launch vehicles: ELV's	Satellite Communications by Timothy Pratt, Wiley India
L 8		Placing the satellite in the geostationary orbit	Satellite Communications by Timothy Pratt, Wiley India
L 9		Doppler shift, range variations, Solar eclipse, sun transit outage	Satellite Communications by Timothy Pratt, Wiley India
L 10	UNIT - II	Satellite subsystem, Attitude & orbit control system (AOCS)	Satellite Communications by Timothy Pratt, Wiley India
L 11		Telemetry, Tracking, Command & Monitoring(TTC&M)	Satellite Communications by Timothy Pratt, Wiley India
L 12		Telemetry, Tracking, Command & Monitoring(TTC&M)	Satellite Communications by Timothy Pratt, Wiley India
L 13		Power system	Satellite Communications by Timothy Pratt, Wiley India
L 14		Communication subsystem	Satellite Communications by Timothy Pratt, Wiley India
L 15		Transponders	Satellite Communications by Timothy Pratt, Wiley India

L16		Satellite antennas	Satellite Communications by Timothy Pratt, Wiley India
L17	UNIT-III	Satellite link design, Basic transmission theory	Satellite Communications by Timothy Pratt, Wiley India
L 18		System noise temperature	Satellite Communications by Timothy Pratt, Wiley India
L 19		G/T ratio	Satellite Communications by Timothy Pratt, Wiley India
L 20		Downlink design link budget	Satellite Communications by Timothy Pratt, Wiley India
L 21		Uplink desgn link budget	Satellite Communications by Timothy Pratt, Wiley India
L 22		Design for specified C/N ratio	Satellite Communications by Timothy Pratt, Wiley India
L 23		Uplink and downlink attenuation in rain	Satellite Communications by Timothy Pratt, Wiley India
L 24		Communication link desgn procedure	Satellite Communications by Timothy Pratt, Wiley India
L 25		System design examples	Satellite Communications by Timothy Pratt, Wiley India
L 26	UNIT-IV	Multiiple access schemes: FDMA	Satellite Communications by Timothy Pratt, Wiley India
L 27		TDMA, CDMA	Satellite Communications by Timothy Pratt, Wiley India
L 28		CDMA, DAMA	Satellite Communications by Timothy Pratt, Wiley India
L 29		VSAT Systems-basic techniques	Satellite Communications by Timothy Pratt, Wiley India
L 30		VSAT earth station engineering	Satellite Communications by Timothy Pratt, Wiley India
L 31		DBS system- C band, Ku band home TV	Satellite Communications by Timothy Pratt, Wiley India
L 32		Digital DBS	Satellite Communications by Timothy Pratt, Wiley India
L 33		Satellite mobile systems	Satellite Communications by Timothy Pratt, Wiley India
L 34		GPS	Satellite Communications by Timothy Pratt, Wiley India
L 35		REVISION	

Text Books:

1. Timothy Pratt, Satellite Communications, Wiley India edition

Reference Books:

1. Anil K Maini, Satellite Communication, Wiley India edition.
2. Siegmund M. Redl, Mathias K. Weber, Malcolm W. Oliphant, “An Introduction to GSM”, Artech House Publishers, 1995.
3. Kraus, J.D., “Antennas”, II Edition, John Wiley and Sons, NY, 1977. 5. Collin, R.E. and Zucker, F., - “Antenna theory: Part I”, Tata McGraw Hill, NY, 1969.