

### Lesson Plan

**Name of the Faculty** : Er. Bhavya Garg  
**Discipline** : Electronics and Communication Engineering  
**Semester** : 8<sup>th</sup>  
**Subject** : Satellite Communications (ECP-24A)  
**Lesson Plan Duration** : 15 weeks (from Jan 2026, May 2026)  
**\*\*Work Load (Lecture / Practical) per week (in hours)** : Lectures-03, Practical-NIL

Week	Theory	
	Lecture Day	Topic (including assignment / test)
1 <sup>st</sup>	1 <sup>st</sup>	Introduction to SATELLITE ORBITS
	2 <sup>nd</sup>	Orbital Mechanics- Kepler's laws
	3 <sup>rd</sup>	locating the satellite in the Orbit,
2 <sup>nd</sup>	4 <sup>th</sup>	locating the satellite with respect to the earth,
	5 <sup>th</sup>	Orbital elements, look angle determination,
	6 <sup>th</sup>	Sub satellite point, Azimuth and elevation angle calculation,
3 <sup>rd</sup>	8 <sup>th</sup>	Orbital perturbations, Longitudinal and Inclination changes
	8 <sup>th</sup>	Launches and launch vehicles-ELV's
	9 <sup>th</sup>	Placing the satellite into geostationary orbit,
4 <sup>th</sup>	10 <sup>th</sup>	Doppler shift, range variations,
	11 <sup>th</sup>	Solar eclipse, sun transit outage
	12 <sup>th</sup>	<b>REVISION 1<sup>st</sup> UNIT/Class Test</b>
5 <sup>th</sup>	13 <sup>th</sup>	Introduction to COMMUNICATION SATELLITES
	14 <sup>th</sup>	Satellite Subsystems
	15 <sup>th</sup>	Attitude Control System
6 <sup>th</sup>	16 <sup>th</sup>	Orbit Control System
	18 <sup>th</sup>	Telemetry
	18 <sup>th</sup>	Tracking
8 <sup>th</sup>	19 <sup>th</sup>	Command and Monitoring (TTC&M)
	20 <sup>th</sup>	Power System
	21 <sup>st</sup>	Communication Subsystems-description
8 <sup>th</sup>	22 <sup>nd</sup>	Transponders
	23 <sup>rd</sup>	Satellite antennas-basic antenna types
	24 <sup>th</sup>	Basic antennas in practice
9 <sup>th</sup>	25 <sup>th</sup>	<b>REVISION 2<sup>nd</sup> UNIT</b>
	26 <sup>th</sup>	<b>Class Test unit-2</b>
	28 <sup>th</sup>	Satellite link design and Satellite access
10 <sup>th</sup>	28 <sup>th</sup>	Basic transmission theory.
	29 <sup>th</sup>	System Noise Temperature And G/T Ratio;

	30 <sup>th</sup>	Downlink Design-Link Budget;
11 <sup>th</sup>	31 <sup>st</sup>	Uplink Design; Design For Specified C/N,
	32 <sup>nd</sup>	Uplink And Downlink Attenuation In Rain,
	33 <sup>rd</sup>	Communication Link Design Procedure;
12 <sup>th</sup>	34 <sup>th</sup>	System Design Examples
	35 <sup>th</sup>	<b>REVISION 3<sup>rd</sup> UNIT</b>
	36 <sup>th</sup>	<b>Class Test-unit 3<sup>rd</sup></b>
13 <sup>th</sup>	38 <sup>th</sup>	Multiple access schemes
	38 <sup>th</sup>	FDMA, TDMA, CDMA, DAMA
	39 <sup>th</sup>	VSAT systems-basic techniques
14 <sup>th</sup>	40 <sup>th</sup>	VSAT earth station engineering
	41 <sup>st</sup>	System Design; DBS Systems-C-Band And Ku Band Home TV
	42 <sup>nd</sup>	Digital DBS
15 <sup>th</sup>	43 <sup>rd</sup>	Satellite Mobile Systems; GPS
	44 <sup>th</sup>	<b>REVISION 4<sup>th</sup> UNIT</b>
	45 <sup>th</sup>	<b>Class Test Unit-4<sup>th</sup></b>

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