



Academic Course Description

SRM University
 Faculty of Engineering and Technology
 Department of Electronics and Communication Engineering

CO2114 Satellite Communication
 Second Semester, 2013-14 (Even semester)

Course (catalog) description

Purpose of this course is to develop a strong foundation in the field of Satellite Communication. The subject gives the students an opportunity to know the communication principles involved in the satellite communications. Students are taught about the earth and space subsystems involved and their importance. Various types of satellites used nowadays are explained.

Credit hours: 3 credits

Course coordinator(s)

Ms.J.Radhika, Assistant Professor(Sr.G), Department of ECE

Instructor(s)

Name of the instructor	Class handling	Office location	Email	Consultations
Ms.J.Radhika	B	TP12S6	radhika.j@ktr.srmuniv.ac.in	Day order 4, 1 to 4 P.M

Relationship to other courses

Pre-requisites : Nil

Reference books:

1. Dennis Roddy, "Satellite Communications", McGraw Hill, 2009.
2. Tri.T.Ha, "Digital Satellite Communications", Tata McGraw-Hill Education-2009.
3. Dr.D.C. Agarwal, "Satellite Communications", Khanna Publishers, 2001.

4. Timothy Pratt, Charles W. Bostian, Jeremy E. Allnutt "Satellite Communications", John Wiley & Sons, 2002.

Section	Schedule
A	Day 3 : 2 hr Day 4 : 1 hr Day 5 : 6 and 7 Hr

Test Schedule

S. No.	Test	Portions	Duration
1	Cycle Test-1	1 and 2 Units	2 Periods
2	Model Test	1 to 5 Units	3 Hrs

Course objectives

The objectives of this course is to
1. Various types of satellite traffic management systems
2. Power budget calculations and Applications of satellites

Weekly teaching plan

Session No	Topics	Text / Chapter
1	Keplers laws	[1] chapter 2,3
2	Orbital Elements	
3	Orbital Perturbations	
4	Apogee and perigee heights, Inclined orbits	
5	Sun synchronous orbits, Geo stationary orbits	
6	Limits of visibility, Sun transit outage	
7	Polar Mount antenna , LEO and MEO	
8	Antenna Look angles	
9	Satellite Constellation	
10	EIRP-Transmission losses	
11	Power budget Equations	

12	System Noise	
13	Carrier to noise ratio	
14	Uplink power-C\No,G\T	
15	Uplink power-C\No,G\T	
16	Downlink power-C\No,G\T	
17	Intermodulation Noise	
18	TWTA	
19	Space Segment-Space subsystems payload	
20	Bus, Power Supply	
21	Attitude Control	
22	Station Keeping	
23	Thermal Control-TT & C Subsystem	[1] –Chapter 7 and 8
24	Transponders	
25	Earth segment-Cassegrain antenna	
26	Low noise Amplifiers- Earth station subsystems	
27	TVRO	
28	FDM/FM/FDMA	
29	SCPC	
30	MCPC	
31	Companded FDM/FM/FDMA	
32	TDM-T1 Carrier	[1] chapter(s) 14
33	TDMA: Frame Burst Structure	
34	Frame Efficiency,Frame acquisition and synchronization	
35	SSTDMA, SPADE	
36	Spread Spectrum Direct Sequence CDMA	
37,38	INTELSAT	
39	INSAT	
40	VSAT	[1] chapter(s) – 17,1
41	Weather forecasting	
42	Remote Sensing	

43	LANDSAT	
44	Satellite Navigation	
45	Mobile Satellite Service,DTH	

Evaluation methods

Surprise test : 5 marks
Cycle test I : 20 marks
Model Exam : 20 marks

Attendance : 5 marks

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Prepared by: Ms. J.Radhika, Assistant Professor (Senior Grade), Department of ECE

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Date of revision: NA
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