

SRM UNIVERSITY
FACULTY OF ENGINEERING AND TECHNOLOGY
SCHOOL OF ELECTRONICS AND COMMUNICATION ENGINEERING
DEPARTMENT OF ECE
COURSE PLAN

Course Code : EC0307
Course Title : Digital Communication
Semester : V Sem
Course Time :

Day	Section							
	A		B		C		D	
	Hr	Time	Hr	Time	Hr	Time	Hr	Time
Monday	7	3.10-4.00p.m	1	8.30-9.20a.m	-	-	3	10.20-11.10am
Tuesday	2,4	9.20-10.10a.m 11.10-12.00 noon	7	3.10-4.p.m	3	10.20-11.10am	1,3	8.30-9.10 10.20-11.10am
Wednesday	-	-	4	11.10-12 noon	1	8.30-9.20a.m	6	2.30-3.10
Thursday	4	11.10-12noon	3	10.20-11.10am	7	3.10-4.p.m		
Friday	-	-	-		5	1.30-2.20pm	-	-

Faculty Details:

Name of the staff	Sec	Office	Office Hours	Mail ID
Mr.R.Ramesh	A	Tech park (Room No.706A)	Friday at (12.30 – 1.30)PM	ramesh7373@gmail.com
Mrs.V.Nithya	B	ESB Room No.204	Friday at (12.30 – 1.30)PM	nithya@ece.srmuniv.ac.in
Mr. M.S.Balamurugan	C	Tech Park (Room No.706A)	Friday at (12.30 – 1.30)PM	balarayar@gmail.com
Ms.J.Radhika	D	Tech park (Room No.803A)	Friday at (12.30 – 1.30)PM	radhikanehru@gmail.com

Required Text Books

1. Simon Haykin, "Communication Systems" 3/e John Wiley & sons, 1998
2. Taub & Schilling, "Principle of Communication Systems" 2/e.

Web Resources:

www. wikipedia.org/wiki/

Prerequisite : EC0210 Communication Theory

Objectives:

1. To understand Pulse modulation and discuss the process of sampling ,quantization and coding
2. To learn base band pulse transmission
3. To become familiar with pass band data transmission methods.

Tentative test dates

Cycle Test - I :
 Surprise Test - I : -
 Cycle Test - II :
 Surprise Test - II : -
 Model Exam :

Test Portions

Cycle test I : Unit I and Half of Unit II
 Cycle test II : Second half of Unit II and Unit III
 Model Exam : Full Portions (All the units)

Assessment details :

Surprise test I & II : 15 marks
 Cycle test I & II : 20 marks
 Model Exam : 15 marks

Outcomes

Students who have successfully completed this course

Course outcome	Program outcome
1. Understands the basics of base band and pass band modulation 2. Gains knowledge in digital modulation techniques such as PPM,PWM,DM 3. Learn Spread Spectrum techniques	a. Graduates will demonstrate knowledge of mathematics, sciences and engineering. c. Graduates will demonstrate the ability to design and conduct experiments , analyze and interpret data d. Graduates will demonstrate the ability to design a system, component or process as per needs and specifications j. Graduate will develop confidence for self education and ability for life long learning.

Detailed Session Plan

Session No	Topics to be covered	Reference	Teaching method	Testing methods
1	Sampling theorem (LPF)	1,2	BB	1.Group Discussion 2.Self test Questions
2	Aliasing	1,2	BB	1.Assignment 2.Quiz
3	Natural and Flat sampling	1,2	BB	1. Group Discussion 2.Self Test Questions
4	PAM (Generation and Detection)	1,2	BB	1. Group Discussion 2.Self Test Questions
5	PWM (Generation and Detection)	1,2	BB	1. Group Discussion 2.Self Test Questions
6	PPM(Generation and Detection)	1,2	BB	1. Group Discussion 2.Self Test Questions

Session No	Topics to be covered	Reference	Teaching method	Testing methods
7	Bandwidth	1,2	BB	1. Group Discussion 2. Self Test Questions
8	Noise trade off	1,2	BB	1. Group Discussion 2. Self Test Questions
9	TDM	1,2	BB	1. Group Discussion 2. Self Test Questions
10	Quantization of signals	1,2	BB	1. Group Discussion 2. Self Test Questions
11	Quantization error	1,2	BB	1. Group Discussion 2. Self Test Questions
12	PCM System	1,2	BB	1. Group Discussion 2. Self Test Questions
13	Noise in PCM, Overall SNR	1,2	BB	1. Group Discussion 2. Self Test Questions
14	Threshold effect in PCM	1,2	BB	1. Group Discussion 2. Self Test Questions
15	Channel capacity limitations and modification of PCM systems	1,2	BB	1. Group Discussion 2. Self Test Questions
16	PCM signal multiplexing (TDM)-DPCM	1,2	BB	1. Group Discussion 2. Self Test Questions
17	Delta modulation and noise in DM	1,2	BB	1. Group Discussion 2. Self Test Questions
18	SNR calculation, Comparison of PCM, DPCM and DM	1,2	BB	1. Group Discussion 2. Self Test Questions
19	Matched filter ,Probability error of matched filter	1,2	BB	1. Group Discussion 2. Self Test Questions
20	ISI ,Derivation of expression	1,2	BB	1. Group Discussion 2. Self Test Questions
21	Details about Roll off factor	1,2	BB	1. Group Discussion 2. Self Test Questions
22	Nyquist Criterion for distortion less base band transmission	1,2	BB	1. Group Discussion 2. Self Test Questions
23	Correlative coding	1,2	BB	1. Group Discussion 2. Self Test Questions
24	Duo binary	1,2	BB	1. Group Discussion 2. Self Test Questions
25	Modified Duo binary scheme	1,2	BB	1. Group Discussion 2. Self Test Questions
26	Base band M-ary PAM transmitter	1,2	BB	1. Group Discussion 2. Self Test Questions
27	Eye pattern	1,2	BB	1. Group Discussion 2. Self Test Questions
28	Pass band transmission model-Generation	1,2	BB	1. Group Discussion 2. Self Test Questions
29	Detection signal space diagram	1,2	BB	1. Group Discussion 2. Self Test Questions
30	BFSK Coherent –Derivation of Probability of error	1,2	BB	1. Group Discussion 2. Self Test Questions
31	BFSK non coherent	1,2	BB	1. Group Discussion 2. Self Test Questions
32	BPSK-Probability of error , signal space diagram	1,2	BB	1. Group Discussion 2. Self Test Questions
33	BPSK- Transmitter and receiver	1,2	BB	1. Group Discussion 2. Self Test Questions
34	QPSK Probability of error	1,2	BB	1. Group Discussion 2. Self Test Questions

Session No	Topics to be covered	Reference	Teaching method	Testing methods
35	QPSK- Transmitter and receiver	1,2	BB	1. Group Discussion 2. Self Test Questions
36	Comparison of BFSK, BPSK and QPSK	1,2	BB	1. Group Discussion 2. Self Test Questions
37	Introduction and definition of Spread spectrum	1,2	BB	1. Group Discussion 2. Self Test Questions
38	Generation of PN Sequence and its applications	1,2	BB	1. Group Discussion 2. Self Test Questions
39	DS-SS transmitter	1,2	BB	1. Group Discussion 2. Self Test Questions
40	DS_SS Receiver	1,2	BB	1. Group Discussion 2. Self Test Questions
41	FHSS- Slow, Fast	1,2	BB	1. Group Discussion 2. Self Test Questions
42	Acquisition of FH signal	1,2	BB	1. Group Discussion 2. Self Test Questions
43	Tracking of FH signal	1,2	BB	1. Group Discussion 2. Self Test Questions
44	Acquisition of DS signal	1,2	BB	1. Group Discussion 2. Self Test Questions
45	Tracking of DS signal	1,2	BB	1. Group Discussion 2. Self Test Questions

? BB- Black Board