SWARNANDHRA
COLLEGE OF ENGINEERING & TECHNOLOGY
Accredited by National Board of Accreditation, AICTE, New Delhi, Accredited by NAAC with "A" Grade – 3.32 CGPA
Recognized under 2(f) & 12(B) of UGC Act 1956, Approved by AICTE, New Delhi,
Permanent Affiliation to JNTUK, Kakinada
SEETHARAMPURAM, W.G.DT., NARSAPUR-534280, (Andhra Pradesh)

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

TEACHING PLAN

Course Code	Course Title	Semester	Branch	Contact Period /Week	Academic Year	Semester Commencement Date
20EC3T04	Analog Communications (R-20)	III	ECE	5	2021-22	25-10-2021

COURSE OUTCOMES

After completion of the course student are able to

1	Understand the concept of communication system, need for modulation, modulation and demodulation techniques in AM.(K1)
2	Describe the concepts of DSB-SC, SSB, FM and Pulse Analog modulation techniques.(K2)
3	Analyze the transmission and reception of a signal in a communication system by using different types of transmitters and receivers.(K4)
4	Estimate the effect of noise on AM, DSB-SC, SSB and FM. (K3)

Unit No	Out Come/Bloom's Level		Topics/Activity	Reference Text book	Contact Periods	Delivery Method
1	CO1: Understand the concept of communication system, need for modulation, modulation and demodulation techniques in AM. (K1)		**AMPLITUDE MODULATION (DSB-FC)**			Chalk & Talk, PPT & Tutorial.
		1.1	Introduction to communication system	T1, R1	1	
		1.2	Block diagram of communication system	T1, R1	1	
		1.3	Need for modulation	T1, R1	1	
		1.4	Amplitude modulation, time domain and frequency domain description and band width	T1, R1	1	
		1.5	Single tone modulation	T1, R1	1	
		1.6	Degrees of modulation, Derivation for Modulation Index	T1, R1	1	
		1.7	Derivation for Efficiency , Power and Current relationship	T1, R1	1	
		1.8	Generation of AM waves: Square law modulator	T1, R1	1	
		1.9	Switching modulator	T1, R1	1	
		1.10	Detection of AM waves: Square law detector	T1, R1	1	
		1.11	Envelope detector	T1, R1	1	
		1.12	CLASS TEST-1		1	
			TOTAL		12	

2	CO2: Describe the concepts of DSB-SC, SSB, FM and Pulse Analog modulation techniques. (K2)		**DSB-SC MODULATION AND SSB MODULATION**			Chalk & Talk, PPT & Tutorial
		2.1	Double side band suppressed carrier modulated wave, Bandwidth, Power and Efficiency Calculation.	T1, R1	1	
		2.2	Time domain and frequency domain description	T1, R1	1	
		2.3	Generation of DSBSC Wave: Balanced modulator	T1, R1	1	
		2.4	Balanced Ring modulator	T1, R1	1	
		2.5	Coherent detection of DSB-SC modulated wave	T1, R1	1	
		2.6	Frequency domain description	T1, R1	1	
		2.7	Frequency discrimination method for the generation of SSB Modulated wave	T1, R1	1	
		2.8	Time domain description	T1, R1	1	
		2.9	Phase discrimination method for the generating SSB Modulated wave	T1, R1	1	
		2.10	Coherent detection of SSB modulated wave	T1, R1	1	
		2.11	Frequency domain description	T1, R1	1	
		2.12	Frequency discrimination method for the generation of SSB Modulated wave	T1, R1	1	
		2.13		CLASS TEST-2	1	
				TOTAL	13	
	CO2: Describe the concepts of DSB-SC, SSB, FM and Pulse Analog modulation techniques. (K2)		**ANGLE MODULATION**			Chalk & Talk, PPT & Tutorial
		3.1	Basic concepts, Frequency and Phase Modulations,	T1, R1	1	
		3.2	Relation between FM and PM	T1, R1	1	
		3.3	Single tone frequency modulation	T1, R1	1	
		3.4	Narrow band FM	T1, R1	1	
		3.5	Wide band FM	T1, R1	1	
		3.6	Transmission bandwidth of FM wave	T1, R1	1	
		3.7	Generation of FM wave: Direct FM	T1, R1	1	
		3.8	Indirect FM	T1, R1	1	
		3.9	Detection of FM Wave: Slope detector	T1, R1	1	
		3.10	Balanced Slope detector	T1, R1	1	
		3.11	Phase discriminator	T1, R1	1	
		3.12	Comparison of FM & AM.	T1, R1	1	
		3.13		CLASS TEST-3	1	
				TOTAL	13	

4	CO3: Analyze the transmission and reception of a signal in a communication system by using different types of transmitters and receivers. (K4)		**RADIO TRANSMITTERS & RECEIVERS**			Chalk & Talk, PPT & Tutorial
		4.1	Radio Transmitter: Classification of Transmitters	T2, R2	1	
		4.2	AM Transmitter (Low level and High level)	T2, R2	1	
		4.3	FM Transmitter- Variable reactance type	T2, R2	1	
		4.4	Phase modulated FM Transmitter	T2, R2	1	
		4.5	Radio Receiver: Classification of Receivers,	T2, R2	1	
		4.6	Tuned radio frequency receiver	T2, R2	1	
		4.7	Super-heterodyne receiver	T2, R2	1	
		4.8	Characteristics of Radio Receiver	T2, R2	1	
		4.9	RF section	T2, R2	1	
		4.10	IF section	T2, R2	1	
		4.11	AGC: Simple and Delayed	T2, R2	1	
		4.12	FM Receiver	T2, R2	1	
		4.13	Comparisons between FM and AM Receiver	T2, R2	1	
		4.14	Amplitude limiter	T2, R2	1	
		4.15		CLASS TEST-4	1	
				TOTAL	15	
5	CO2: Describe the concepts of DSB-SC, SSB, FM and Pulse Analog modulation techniques. (K2) CO4: Estimate the effect of noise on AM, DSB-SC, SSB and Angle modulation. (K3)		**ANALOG PULSE MODULATION & NOISE IN CW MODULATION**			Chalk & Talk, PPT & Tutorial
		5.1	Types Analog pulse modulation	T1, R1	1	
		5.2	Generation & demodulation of PAM(Single polarity)	T1, R1	1	
		5.3	Generation and demodulation of PWM	T1, R1	1	
		5.4	Generation and demodulation of PPM	T1, R1	1	
		5.5	Receiver Model	T1, R1	1	
		5.6	Derive figure of merit in DSB-SC System	T1, R1	1	
		5.7	Derive figure of merit in SSB System	T1, R1	1	
		5.8	Derive figure of merit in AM System	T1, R1	1	
		5.9	Derive figure of merit in FM System	T1, R1	1	
		5.10	Pre-emphasis and de-emphasis.	T1, R1	1	
	Content beyond Syllabus	5.11	Applications of different AM Techniques	T1, R1	1	

		5.12	CLASS TEST-5	1	
			TOTAL	12	
			TOTAL PROPOSED NO. OF CLASSES	**65**	

Text Books:

S.No.	AUTHORS/BOOK TITLE/EDITION(latest)/PUBLISHER/YEAR OF PUBLICATION
1	Simon Haykin , Principles of Communication Systems, 2nd Ed., John Wiley, 2008.
2	George Kennedy and Bernard Davis, Electronic Communication System, 3rd Ed., TMH, 2004.

Reference Books:

S.No.	AUTHORS/BOOK TITLE/EDITION(latest)/PUBLISHER/YEAR OF PUBLICATION
1	H. Taub & D. Schilling, Gautam Sahe, Principles of Communication Systems, 3rd Ed., TMH, 2007.
	B.P. Lathi, Communication Systems, 4th Ed., BS Publication, 2006.
3	Bhagwandas Pannalal Lathi, Zhi Ding, Modern Digital and Analog Communication Systems, 4th Ed., Oxford University Press, 2019.

Web Details

1	www.nptel.ac.in
2	www.slideshare.net
3	https://youtu.be/Z-Hw3CpPVj0

		Name	Signature with date
i.	Faculty-I	Mr. M. Premchand	
ii.	Faculty-II (for common Course)	Dr. B. Sadasiva Rao	
iii.	Course Coordinator	Mr. M. Premchand	
iv.	Module Coordinator	Dr. B. Sadasiva Rao	
v.	Programme Coordinator	Dr. B. S. Rao	

Principal
Dr. S. Suresh Kumar