SWARNANDHRA COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous)

Narsapur, West Godavari District, A.P. 534280

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

TEACHING PLAN

Course Code	Course Title	Semester	Branch	Contact Period/Week	Academic Year	Course Commencement Date
23EC4T03	Analog Communications	IV	ECE	5	2025-26	10-12-2025

COURSE OUTCOMES:

At the end of the Analog Communications Course, student can able to

1.	Demonstrate the Modulation and Demodulation techniques of standard AM, DSBSC, SSB and VSB. [K3]
2.	Analyze the concepts of generation and detection of Angle Modulated signals. [K4]
3	Interpret the Radio Transmitters and Radio Receivers with different sections. [K3]
4.	Illustrate the noise performance in Analog Modulation techniques and also the concepts of Pulse Analog Modulation and Demodulation techniques. [K3]

Unit No.	Out Comes/ Bloom's Level	Topics No	Topics/Activity	Number of periods	Text Book/ Reference	Delivery Method
1	CO1: Demonstrate the Modulation and Demodulation techniques of standard AM, DSBSC, SSB and VSB. [K3]	**UNIT-1: Amplitude Modulation**			T1, T2, R1	Chalk and Talk, PPT and E-Learning
		1.1	Introduction to Fourier transform	1		
		1.2	Introduction to communication tem, Need for modulation	1		
		1.3	Frequency Division Multiplexing	1		
		1.4	Amplitude Modulation (AM)	1		
		1.5	AM: Time domain description	1		
		1.6	AM: Frequency domain description	1		
		1.7	Single tone modulation	1		
		1.8	Power relations in AM waves	1		
		1.9	Generation of AM waves: Square law Modulator	1		
		1.10	Switching modulator	1		
		1.11	Detection of AM Waves: Square law detector	1		
		1.12	Envelope detector	1		
				12		
2	CO1: Demonstrate the Modulation and Demodulation techniques of standard AM, DSBSC, SSB and VSB. [K3]	**UNIT-2: DSB & SSB Modulation**			T1, R1, R3	Chalk and Talk, PPT and E-Learning
		2.1	Double sideband suppressed carrier modulator: Time domain description	1		
		2.2	DSBSC: Frequency domain des ption	1		
		2.3	Generation of DSBSC Waves: Balanced Modulator	1		
		2.4	Ring Modulator	1		
		2.5	Detection of DSBSC Waves: Coherent detection	1		
		2.6	SSB Modulation and Demodulation	1		
		2.7	VSB Modulation and Demodulation	1		
		2.8	Comparison of different AM Techniques	1		
		2.9	Applications of different AM Systems	1		
				09		

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Unit No.	Out Comes/ Bloom's Level	Topics No	Topics/Activity	Number of periods	Text Book/ Reference	Delivery Method
3	CO2: Analyze the concepts of generation and detection of Angle Modulated signals. [K4]	**UNIT-3: Angle Modulation**			T2, R1, R2	Chalk and Talk, PPT and E-Learning
		3.1	Introduction	1		
		3.2	Basic concept of phase modulation	1		
		3.3	Frequency Modulation: Single tone frequency modulation	1		
		3.4	Spectrum Analysis of Sinusoidal FM Wave	1		
		3.5	Narrow band FM	1		
		3.6	Wide band FM	1		
		3.7	Constant Average Power, Transmission bandwidth of FM Wave	1		
		3.8	Generation of FM Waves: Direct Method	1		
		3.9	Indirect Method	1		
		3.10	Detection of FM Waves: Balanced Frequency discriminator	1		
		3.11	Zero crossing detector	1		
		312	Phase locked loop	1		
		3.13	Comparison of FM & AM	1		
		3.14	Related problems	1		
				14		
4	CO3: Interpret the Radio Transmitters and Radio Receivers with different sections. [K4]	**UNIT-4: Radio Transmitters:**			T1, T3, R2	Chalk and Talk, PPT and E-Learning
		4.1	Classification of Transmitters	1		
		4.2	AM Transmitter	1		
		4.3	Effect of feedback on performance of AM Transmitter	1		
		4.4	FM Transmitter: Variable reactance type	1		
		4.5	Phase modulated FM Transmitter	1		
		4.6	Frequency stability in FM Transmitter	1		
			Radio Receivers:	1		
		4.7	Receiver Types: Tuned radio frequency receiver			
		4.8	Super heterodyne receiver	1		
		4.9	RF section and Characteristics	1		
		4.10	Frequency changing and tracking	1		
		4.11	Intermediate frequency, AGC	1		
		4.12	FM Receiver, Amplitude limiting	1		
		4.13	Comparison of FM & AM Receivers	1		
				13		
5	CO4: Illustrate the noise performance in Analog Modulation techniques and also the concepts of Pulse Analog Modulation and Demodulation techniques. [K3]	**UNIT-5: Noise:**			T1, R1, R2	Chalk and Talk, PPT and E-Learning
		5.1	Review of noise, noise sources, Noise figure	1		
		5.2	Noise in Analog Communication Systems: Noise in DSB & SSB Systems	1		
		5.3	Noise in AM System	1		
		5.4	Noise in Angle Modulation Systems	1		
		5.5	Threshold effect in Angle Modulation System	1		
		5.6	Pre-emphasis & De-emphasis	1		
		5.7	Types of Pulse modulation (Analog)	1		
		5.8	PAM (Single polarity, double polarity)	1		
		5.9	PWM: Generation & Detection of PWM	1		
		5.10	PPM: Generation and Detection of PPM	1		
		5.11	Time Division Multiplexing, TDM Vs FDM	1		
	Content Beyond Syllabus	5.12	AM Broadcasting	1		
		5.13	Applications of FM Systems	1		
		5.14	Applications of PAM Systems	1		
		5.15	Radio Transmitter parameters	1		
				15		
			CUMULATIVE PROPOSED CLASSES	63		

Text Books:	
S.No	**AUTHORS, BOOK TITLE, EDITION, PUBLISHER, YEAR OF PUBLICATION**
1	Simon Haykin, Michael Moher, Wiley, Communication Systems, 5th Edition, John Wiley Publications, 2009.
2	H Taub, D L Schilling, Gautam Sahe, Principles of Communication Systems, 4th Edition, TMH, 2017
3	B.P.Lathi, Zhi Ding, Hari Mohan Gupta, Modern Digital and Analog Communication Systems, 4th Edition, Oxford University Press, 2017
Reference Books:	
1	George Kennedy, Bernard Davis, S R M Prasanna, Electronics & Communication Systems, 6th Edition, TMH, 2017.
2	R P Singh, S D Sapre, Communication Systems, 3rd Edition, TMH, 2017.
3	Dr. Sanjay Sharma, Communication Systems (Analog and Digital), 7th Reprint Edition, Katson Books, 2018

Web Details:	
S. No	
1	http://nptel.ac.in/courses/117102059/ Prof. Surendra Prasad.
2	https://ict.iitk.ac.in/wp-content/uploads/EE320A-Principles-Of-Communication-CommunicationSystems-4ed-Haykin.pdf.
3	https://www.scribd.com/document/266137872/sanjay-sharma-pdf.
4	http://bayanbox.ir/view/9144090835198890 86/Book-Modern-Digital-And-AnalogCommunication-Systems-4th-edition-by-Lathi.pdf.
5	https://soaneemrana.org/onewebmedia/electronics%20communication%20system%20by%20george%20kennedy.pdf

		Name	Signature with Date
i.	Faculty	Dr. B. S. Rao	
		Dr. Y. S. V. Raman	
		Mr. D. Rahul Khanna	11/12/25
ii.	Course Coordinator	Dr. B. S. Rao	
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Principal

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