DRONACHARYA COLLEGE OF ENGINEERING

KHENTAWAS, FARRUKHNAGAR, GURGAON, HR

Department: ECE

Academic Session: (MAY- AUG 2021)

Lesson Plan with Assignment questions

Subject with code:Communication Systems (PCC- ECE 202G)

Name of Faculty with designation : Dr. Isha Malhotra (Professor)

Month	Date & Day	Sem-Class	Unit	Topic/Chapter covered	Write Lecture Wise Questions	Remarks
		IV ECE	I	Introduction To Communication System: Modulation, Demodulation, Radio Frequency Spectrum	Q.1 What is the significance of modulation? Q.2 What is the purpose of modulating signal in transmission?	
		IV ECE	I	Signals & their classification, Limitations & Advantages of a Communication System	Q.1 What are the three basic units of a communication system? Q.2	
		IV ECE	I	Comparison of Analog & Digital Communication Systems, Historical Perspective,Modes & Medias of Communication.	Q.1 Differentiate between analog and digital signals. Q.2 How is modulation index play a significant role in mode of communication?	
		IV ECE	I	Sources of Noise, External & Internal Noise, Noise Calculations, Noise Figure	Q.1 . Define bandwidth? Q.2 Define processing gain.	
		IV ECE	I	Noise Figure Calculation, Noise Temperature, Noise in Communication Systems, Band Pass Noise Model,	Q.1 Explain (i) SNR (ii) Noise Figure (iii) Noise temperature (iv)Thermal Noise	
		IV ECE	I	Cascaded States & its Noise Figure Calculation, Signal in presence of Noise, Pre-Emphasis & DeEmphasis	Q. Write short note on (i) Pre-Emphasis (ii) DeEmphasis	
		IV ECE	I	Noise Quieting Effect, Capture Effect,Noise in Modulation Systems.	Q.1 What is noise? Q.2 How does it affects performance of communication systems?	
		IV ECE	II	Linear Modulation: Basic definition & derivation for Modulation & Modulation Index,Modulation & Demodulation of AM	Q.1 Draw block diagram of a simple amplitude modulation Q.2 Explain the Blok diagram.	
		IV ECE	II	Suppressed Carrier Modulation, Quadrature Amplitude Modulation,	Q.1 Explain QAM ? Q.2 List advantages and disadvantages of QAM.	
		IV ECE	II	SSB-SC, DSB-SC, VSB Modulation & Demodulation	Q Explain the concept of coherent detection in (i) DSB-SC (ii) SSB-SC with suitable mathematical	
		IV ECE	II	VSB Modulation & Demodulation, Comparison of various AM Systems, Generation of AM waves.	Q.1 Explain design of sideband filter for generation of Vestigial Sideband (VSB) modulation with suitable	
		IV ECE	II	Angle Modulation: Basic definition & derivation for Modulation & Modulation Index, Generation of FM waves	Q.1 What type of modulation is required for televiosion broad cast?	
		IV ECE	II	Comparison between PM & FM, Frequency Spectrum of FM, B.W. & required spectra, Types of FM	Q.1 In TV transmission which is used –either A.M or F.M? Q.2. In demodulation stage , how the RF signal is removed	
		IV ECE	II	vector representation of FM, Universal Curve, Multiple FM	Q.1 Write short note on Hilbert Transform. Q.2. Explain narrowband and wideband FM with block	

Month	Date & Day	Sem-Class	Unit	Topic/Chapter covered	Write Lecture Wise Questions	Remarks
		IV ECE	II	Demodulation of FM waves, Demodulation of PM waves, Comparison between AM & FM.	Q.1 Why frequency modulation is prefered over amplitude modulation?	
		IV ECE	III	Classification of Radio Transmitters, Basic Block Diagram of Radio Transmitter	Q.1 Distinguish between point to point and broadcast communication modes with example.	
		IV ECE	III	Effect of Feedback on operation of Transmitter, Radio Telephone Transmitters,Privacy Device in Radio Telephony	Q.1. Describe Foster-seelay or ratio detector. Q.2 discuss their advantages and methods to overcome their limitations.	
		IV ECE	III	FM Transmitter using Reactance Modulator, Armstrong FM Transmitter, Radio Receivers	Q.1 . Explain the FM threshold effect and capture effect. Q.2 Explain with block diagram the Armstrong method of FM	
		IV ECE	III	Classification, TRF Receiver, Super Heterodyne Receiver	Q.1 Define Passband transmission. Q.2. Draw the baseband signal.	
		IV ECE	III	Image Rejection & Double Spotting, Choice of IF, Tracking & Alignment of Receivers, AGC.	Q.1 Differentiate between information and signal. Q.2. Explain quantization?.	
		IV ECE	III	Sampling theory, TDM, FDM Modulation & Demodulation techniques	Q.1. List out uses of sampling theorem Q.2 Define instantaneous sampling	
		IV ECE	III	PAM, PWM, PPM, Modulation & Demodulation techniques	Q.1 Compare PAM and PTM . Q.2 Explain different types of PTM.	
		IV ECE	IV	Pulse Digital Modulation: Elements of Pulse Code Modulation, Noise in PCM Systems,Bandwidth of PCM Systems,	Q.1 Explain different elements of a PCM system . Q.2 Find an expression for quantization noise in PCM.	
		IV ECE	IV	Measure of Information, Channel Capacity, Channel Capacity of PCM System, Differential Pulse Code Modulation (DPCM). Delta Modulation	Q.1 State and explain Shannon's theorems on channel capacity. Q.2 Explain DPCM or Delta modulation?	
		IV ECE	IV	Digital Carrier Modulation And Demodulation Techniques:Digital Modulation Formats, Coherent Binary Modulation & Demodulation:ASK	Q.1 Why in digital communication, PCM is preferred than PAM ?. Justify your comment.	
		IV ECE	IV	BPSK,BFSK Modulation & Demodulation Techniques	Q.1 What is BPSK? Q.2 Derive the expression for the BPSK technique.	
		IV ECE	IV	Coherent Quadrature Modulation & Demodulation Techniques : QPSK, MSK.	Q.1 What is MSK? Q.2 Explain QPSK?	
		IV ECE	IV	Non Coherent BFSK, Differential PSK	Q.1 Differentiate coherent FSK from Non-coherent FSK. Q.2 What are the types of digital modulation techniques?	
		IV ECE	IV	M-Ary Modulation & Demodulation Techniques: M-Ary PSK, M-Ary QAM, M-Ary FSK	Q.1 Define MFSK? Q.2. Draw the wave form of the MPSK	
		IV ECE	IV	M-Ary FSK, Synchronization: Carrier & Symbol Synchronization.	Q.1 Explain carrier Synchronization? Q.2 Explain symbol Synchronization?	