Lesson Plan

Name of Faculty : Harish Garg
Discipline : Electronics & Comm. Eng.
Semester : 3rd
Subject : ADC
Lesson Plan Duration : 16 weeks

Work load (Lecture /Practical) per week (in hours): Lectures—03, Practical—00

week	Lecture Day	Topic (Including Assignment/ Test	Practical Day	Topic
1st	1	Introduction of Subject and Need for modulation	1st	General idea's for lab Equipment's
	2	frequency translation and demodulation in communication systems		
	3	Basic scheme of a modern communication system		
2nd	4	Derivation of expression for an amplitude modulated wave Carrier and side band components	2nd	To observe an AM wave on CRO produced by a standard signal generator using internal and external modulation To measure the modulation index of the wave obtained in above practical
	5	Modulation index. Spectrum and BW of AM Wave. Relative power distribution in carrier and side bands		
	6	Elementary idea of DSB-SC modulations and its application		
3rd	7	Elementary idea of SSB-SC modulations and its application	3rd	To observe an AM wave on CRO produced by a standard signal generator using internal and external modulation To measure the modulation index of the wave obtained in above practical
	8	Elementary idea of ISB and VSB modulations and its application		
	9	Comparison of DSB- SC ,SSB- SC, ISB, and VSB modulation		
4th	10	Expression for frequency modulated wave and its frequency spectrum (without Proof and analysis of Bassel function)	4th	To obtain an AM wave from a square law modulator circuit and observe waveforms b) To measure the modulation index of the obtained wave form
	11	Modulation index, maximum frequency deviation and deviation ratio, BW of FM signals, Carson's rule		
	12	Effect of noise on FM carrier. Noise triangle		
5th	13	Role of limiter, Need for pre-emphasis and de-emphasis, capture effect.	5th	To obtain an AM wave from a square law modulator circuit and observe waveforms To measure the modulation index of
	14	Comparison of FM and AM in communication systems		
	15	Assignment / Revision		

				the obtained wave form
6th	16	Test	6th	To obtain an FM wave and measure the frequency deviation for different modulating signals.
	17	Derivation of expression for phase modulated wave modulation index		
	18	Derivation of expression for phase modulated wave modulation index		
7th	19	Comparison with frequency modulation.	7th	To obtain an FM wave and measure the frequency deviation for different modulating signals.
	20	Assignment /Quiz		
	21	Circuit Diagram and working operation of Collector Modulator		
8th	22	Circuit Diagram and working operation of Base Modulator	8th	To obtain modulating signal from FM detector
	23	Circuit Diagram and working operation of Square Low Modulator		
	24	Circuit Diagram and working operation of Balanced Modulator		
9th	25	Revision	9th	Revision
	26	Working principles and applications of reactance modulator		
	27	Working principles and applications of varactor diode modulator		
10th	28	Working principles and applications of VCO modulator	10th	To observe the sampled signal and compare it with the analog input signal. Note the effect of varying the sampling pulse width and frequency on the sampled output
	29	Working principles and applications of Armstrong phase modulator		
	30	Stabilization of carrier using AFC (Block diagram approach)		
11th	31	Assignment / Test	11th	To observe and note the pulse amplitude modulated signal (PAM) and compare them with the corresponding analog input signal
	32	Principles of demodulation of AM wave using diode detector circuit		
	33	concept of Clipping		
12th	34	formula for RC time constant for minimum distortion (no derivation)	12th	Revision
	35	Assignment		
	36	Expert Lecture		
13th	37	Basic principles of FM detection using slope detect	13th	To observe PPM and PWM ignal and compre it with the analo input signal
	38	Principle of working of the Foster-Seeley discriminator FM demodulator (No Derivation)		
	39	Principle of working of the Ratio detector FM demodulator (No Derivation)		

14th	40	Block diagram of Phase locked Loop (PLL) FM demodulator (No Derivation)	14th	Revision
	41	Revision / Assignment		
	42	Statement of sampling theorem and elementary idea of sampling frequency for pulse modulation		
15th	43	Basic concepts of time division multiplexing (TDM)	15th	Revision/ viva
	44	frequency division multiplexing (FDM)		
	45	Pulse Amplitude Modulation (PAM)		
16th	46	Pulse Position Modulation (PPM)	16th	Revision/ viva
	47	Pulse Width Modulation (PWM)		
	48	Revision		