Subject : PCE **Sem : 3rd ECE** **Faculty Name : Sandeep Kumar**

Week	Lecture	Name of topic	Experiment
1st	**1**	Need for modulation, frequency translation and demodulation in communication systems	To observe an AM wave on CRO produced by a standard signal generator using internal and external modulation.
	2	Basic scheme of a modern communication system	
	3	Amplitude Modulation	
2nd	**4**	Derivation of expression for an amplitude modulated wave. Carrier and side band.	To measure the modulation index of the wave obtained in AM
	5	Modulation index. Spectrum and BW of AM Wave.	
	6	Elementary idea of DSB-SC, SSB-SC,	
3rd	**7**	ISB and VSB modulations, their comparison,	To obtain an AM wave from a square law modulator circuit and observe waveforms
	8	Areas of applications of ISB and VSB	
	9	Frequency Modulation-Expression for frequency modulated wave and its frequency spectrum (without Proof and analysis of Bassel function)	
4th	**10**	Modulation index, maximum frequency deviation and deviation ratio,	To measure the modulation index of the obtained wave form in FM
	11	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	Revision and Viva-voce
	14	Comparison of FM and AM in communication systems.	
	15	Revision	
6th	**16**	Sessional Test	To obtain an FM wave and measure the frequency deviation for different modulating signals.
	17	Phase modulation	
	18	Derivation of expression for phase modulated wave	
7th	**19**	Modulation index	To obtain modulating signal from an AM detector circuit and observe the pattern for different RC time constants and obtain its optimum value
	20	comparison with frequency modulation.	
	21	Principles of AM Modulators	

			for least distortion.
8th	22	Circuit Diagram and working operation of Collector and Base Modulator	To obtain modulating signal from FM detector.
	23	Square Law Modulator	
	24	Balanced Modulator	
9th	25	Principles of FM Modulators	Revision and viva-voce
	26	Working principles and applications of reactance modulator	
	27	Varactor diode modulator. VCO	
10th	28	Armstrong phase modulator.	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	Stabilization of carrier using AFC (Block diagram approach).	
	30	Revision	
11th	31	Sessional test	To observe and note the pulse amplitude modulated signal (PAM) and compare them with the corresponding analog input signal
	32	Demodulation of AM Waves	
	33	Principles of demodulation of AM wave using diode detector circuit.	
12th	34	concept of Clipping .	
	35	Formula for RC time constant for minimum distortion.	
	36	Demodulation of FM Waves	
13th	37	Basic principles of FM detection using slope detector	To observe PPM and PWM signal and compare it with the analog input signal
	38	Principle of working of Foster-Seeley discriminator	
	39	Ratio detector .	
14th	40	Block diagram of Phase locked Loop (PLL) FM demodulators.	Revision and viva-voce
	41	Pulse Modulation - Statement of sampling theorem and elementary idea of sampling frequency for pulse modulation.	
	42	Basic concepts of time division multiplexing (TDM) and frequency division multiplexing (FDM)	
15th	43	Pulse Amplitude Modulation (PAM), Pulse Position Modulation (PPM).	Revision and viva-voce
	44	Pulse Width Modulation (PWM).	
	45	Sessional test	

16th	**46**	Revision	Revision and viva-voce
	47	Revision	
	48	Revision	