

GOVT. POLYTECHNIC EDUCATION SOCIETY, MANESAR

LESSON PLAN

Name of the Faculty: DEVENDER SINGH

Discipline : Electronics & Communication Engg.

Semester : 3rd

Subject : Principles of Communication Engineering

Lesson Plan Duration: Approx. 15 weeks (from Sep. 2020 to Dec. 2020)

Work Load (Lecture / Practical) per week (in hours): Lectures-03, Practicals-06

Week	Theory		Practical	
	Lecture Day	Topic (Including assignment / test)	Practical day	Topic
1 st	1 st	Introduction about the Subject/course and its syllabus.	1 st	Group 1: Exp 1- a) To observe an AM wave on CRO produced by a standard signal generator using internal and external modulation. b) To measure the modulation index of the wave obtained in above practical.
	2 nd	Unit-1: Introduction Need for modulation, frequency translation.	2 nd	Group 2: Exp 1- a) To observe an AM wave on CRO produced by a standard signal generator using internal and external modulation. b) To measure the modulation index of the wave obtained in above practical.
	3 rd	Need for demodulation in communication systems.		
2 nd	4 th	Basic scheme of a Modern communication system.	1 st	Group 1: Exp 1- contd. & Viva
	5 th	Revision	2 nd	Group 2: Exp 1- contd. & Viva
	6 th	Unit-2: Amplitude modulation Derivation of expression for an amplitude modulated wave.		
3 rd	7 th	Carrier and side band components, Modulation index	1 st	Group 1: Exp 2 a) 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.
	8 th	Spectrum and BW of AM Wave.	2 nd	Group 2: Exp 2 a) 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.
	9 th	Relative power distribution in carrier and side bands.		
4 th	10 th	Elementary idea of DSB-SC, SSB-SC, ISB and VSB modulations	1 st	Group 1: Exp 2 contd. & Viva
	11 th	Elementary idea of DSB-SC, SSB-SC, ISB	2 nd	Group 2: Exp 2 contd. & Viva

		and VSB modulations contd.		
	12 th	Comparison of various AM systems and areas of applications.		
5 th	13 th	Revision & Assignment	1 st	Group 1: Exp 3 To obtain an FM wave and measure the frequency deviation for different modulating signals.
	14 th	Unit-3: Frequency modulation Expression for frequency modulated wave and its frequency spectrum	2 nd	Group 2: Exp 3 To obtain an FM wave and measure the frequency deviation for different modulating signals.
	15 th	Modulation index, maximum frequency deviation and deviation ratio		
6 th	16 th	BW of FM signals, Carson's rule.	1 st	Group 1: Exp 3 Revision & Viva
	17 th	Effect of noise on FM carrier, Noise triangle	2 nd	Group 2: Exp 3 Revision & Viva
	18 th	Role of limiter, Need for pre-emphasis and de-emphasis, capture effect.		
7 th	19 th	Comparison of FM and AM in communication systems	1 st	Group 1: Exp 4 To obtain modulating signal from an AM detector circuit and observe the pattern for different RC time constants and obtain its optimum value for least distortion.
	20 th	Revision and class test/quiz.	2 nd	Group 2: Exp 4 To obtain modulating signal from an AM detector circuit and observe the pattern for different RC time constants and obtain its optimum value for least distortion.
	21 st	Unit-4: Phase modulation Derivation of expression for phase modulated wave, modulation index		
8 th	22 nd	Comparison with frequency modulation	1 st	Group 1: Exp 4 Revision & Viva
	23 rd	Unit-5: Principles of AM Modulators Circuit Diagram and working operation of Collector Modulator	2 nd	Group 2: Exp 4 Revision & Viva
	24 th	Base Modulator		
9 th	25 th	Square Law Modulator	1 st	Group 1: Exp 5 To obtain modulating signal from FM detector.
	26 th	Balanced Modulator, Revision and Assignment	2 nd	Group 2: Exp 5 To obtain modulating signal from FM detector.
	27 th	Unit-6: Principles of FM Modulators Working principles and applications of reactance modulator		
10 th	28 th	Varactor diode modulator	1 st	Group 1: Exp 5 Revision
	29 th	VCO Modulator	2 nd	Group 2: Exp 5 Revision
	30 th	Armstrong phase modulator		

11 th	31 st	Stabilization of carrier using AFC (Block diagram approach)	1 st	Group 1: Exp 6 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.
	32 nd	Revision and class test/quiz.	2 nd	Group 2: Exp 6 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.
	33 rd	Unit-7: Demodulation of AM Waves Principles of demodulation of AM wave		
12 th	34 th	Diode detector circuit	1 st	Group 1: Exp 6 contd. & Viva
	35 th	Concept of Clipping	2 nd	Group 2: Exp 6 contd. & Viva
	36 th	Formula for RC time constant for minimum distortion (no derivation)		
13 th	37 th	Revision & Assignment	1 st	Group 1: Exp 7 To observe and note the pulse amplitude modulated signal (PAM) and compare them with the corresponding analog input signal.
	38 th	Unit-8: Demodulation of FM Waves Basic principles of FM detection using slope detector	2 nd	Group 1: Exp 7 To observe and note the pulse amplitude modulated signal (PAM) and compare them with the corresponding analog input signal.
	39 th	Principle of working of Foster-Seeley discriminator		
14 th	40 th	Ratio detector	1 st	Group 1: Exp 7 contd.
	41 st	Block diagram of Phase locked Loop (PLL) FM demodulators	2 nd	Group 1: Exp 7 contd.
	42 nd	Unit-9: Pulse Modulation Statement of sampling theorem and elementary idea of sampling frequency for pulse modulation		
15 th	43 rd	Basic concept of time division multiplexing (TDM)	1 st	Group 1: Exp 8 To observe PPM and PWM signal and compare it with the analog input signal.
	44 th	Frequency division multiplexing (FDM)	2 nd	Group 2: Exp 8 To observe PPM and PWM signal and compare it with the analog input signal.
	45 th	Pulse Amplitude Modulation (PAM)		
16 th	46 th	Pulse Position Modulation (PPM)	1 st	Revision & Viva
	47 th	Pulse Width Modulation (PWM)	2 nd	Revision & Viva
	48 th	Revision and class test/quiz.		