Lesson Plan

Name of Faculty :- Sanjay Mehta

Discipline :- Electrical Engineering

Semester :- Fourth Semester

Subject :- Electronics -II

Lesson Plan Duration:- 15 Week

Week	Theory		Practical	
	Lecture Day	**Topic**	**Practical Day**	**Topic**
1st	1st	Transistor Audio Power Amplifier Difference between voltage and power amplifier	1st	To study the effect of coupling capacitor on lower cut off frequency and upper cut off frequency by plotting frequency response curve of a two stage RC coupled amplifier
	2nd	Important terms in Power Amplifier, collector efficiency, distortion and dissipation capability		
	3rd	Classification of power amplifier class A, B and C	2nd	-- do--
	4th	Class A single-ended power amplifier, its working and collector efficiency		
	1st	Impedance matching in a power amplifier using transformer	1st	To measure (a) optimum load (b) output power (c) signal handling capacity of a push-pull amplifier
	2nd	Heat sinks in power amplifiers Push-pull amplifier: circuit		

2nd		details, working and advantages (no mathematical derivations)		
	3rd	REVISION	2nd	**-- do--**
	4th	REVISION		
3rd	1st	Principles of the working of complementary symmetry push-pull amplifier		To observe the effect of negative current feedback on the voltage gain of a single stage transistor amplifier by removing emitter bye-pass capacitor.
	2nd	Tuned Voltage Amplifier Introduction		
	3rd	Series and parallel resonance (No mathematical derivation)	2nd	**-- do--**
	4th	Single and double tuned voltage amplifiers		
4th	1st	Frequency response of tuned voltage amplifiers Applications of tuned voltage amplifiers	1st	To measure (a) voltage gain (b) input and output impedance for an emitter follower circuit
	2nd	Feedback in Amplifiers Feedback and its importance, positive and negative feedback and their need		
	3rd	REVISION	2nd	**-- do--**
	4th	REVISION		
5th	1st	Voltage gain of an amplifier with negative feedback $A = \frac{\qquad}{1+\beta A}$	1st	To measure frequency generation in (a) Hartley (b) R-C Phase Shift oscillator
	2nd	Effect of negative feedback on voltage gain, stability, distortion, band width, output and input impedance of an amplifier (No mathematical derivation)		
	3rd	REVISION	2nd	**-- do--**
	4th	REVISION		

6th	1st	Typical feedback circuits Effect of removing the emitter by-pass capacitor on a CE transistor amplifier	1st	To observe the differentiated and integrated square wave on a CRO for different values of R-C time constant
	2nd	Emitter follower and its applications		
	3rd	Sinusoidal Oscillators 4.1. Sinusoidal Oscillators – positive feedback in amplifiers 4.2. Difference between an oscillator and an alternator	2nd	
	4th	REVISION		
7th	1st	Essentials of an oscillator	1st	Clipping of both portion of sine-wave using: a) diode and dc source b) zener diodes
	2nd	Circuit details and working of LC oscillators viz. Tuned Collector, Hartley and Colpitt's oscillators		
	3rd	REVISION	2nd	-- do--
	4th	REVISION		
8th	1st	R-C oscillator circuits, phase shift oscillators	1st	Clamping a sine-wave to: a) Negative dc voltage b) Positive dc voltage
	2nd	Wein bridge oscillator circuits		
	3rd	Introduction to piezoelectric crystal and crystal oscillator circuit	2nd	-- do--
	4th	REVISION		
9th	1st	Wave-Shaping and Switching Circuits Concept of Wave-shaping	1st	To generate square-wave using an astable multivibrator and to observe the wave form on a CRO and verify the result using p-spice software
	2nd	Wave-shaping circuits a. R-C differentiating and integrating circuits b. Diode clipping circuits		
	3rd	c. Diode clamping circuits	2nd	-- do--
	4th	REVISION		

10th	1st	d. Applications of wave-shaping circuits	1st	To observe triggering and working of a bistable multivibrator circuit and observe its output wave form on a CRO
	2nd	Transistor as a switch - explanation using CE transistor characteristics		
	3rd	Collector coupled astable, monostable multivibrator circuits. (explanation using wave shapes).	2nd	**-- do--**
	4th	REVISION		
11th	1st	Collector coupled bistable multivibrator circuits (explanation using wave shapes). Brief mention of uses of multivibrators	1st	To use the op-Amp (IC 741) as inverting one and non-inverting amplifiers, adder, comparator, integrator and differentiator and verify the result using p-spice software
	2nd	Working and applications of transistor inverter circuit using power transistors		
	3rd	REVISION	2nd	**-- do--**
	4th	REVISION		
12th	1st	Power supplies - Working Principles of different types of power supplies viz. CVTs, IC voltage regulator (78 XX,79XX)	1st	To study the pin configuration and working of IC 555 and its use as monostable and astable multivibrator
	2nd	Operational Amplifier The basic operational amplifier. The differential amplifier. The emitter coupled differential amplifier. Offset even voltages and currents		
	3rd	REVISION	2nd	**-- do--**
	4th	REVISION		
13th	1st	Basic operational amplifier applications, integrator and differentiator	1st	To realize the regulated power supply by using three terminal voltage regulator ICs such as 7805, 7905, 7915 etc. and verify the result using p-spice software.
	2nd	summer, subtractor		

	3rd	REVISION	2nd	REVISION PRACTICAL
	4th	REVISION		
14th	1st	Familiarization with specifications and pin configuration of IC 741 Block diagram and operation of 555 IC timer	1st	REVISION PRACTICAL
	2nd	REVISION		
	3rd	REVISION	2nd	REVISION PRACTICAL
	4th	REVISION		
15th	1st	REVISION	1st	REVISION PRACTICAL
	2nd	REVISION		
	3rd	REVISION	2nd	REVISION PRACTICAL
	4th	REVISION		