Lesson Plan

Name of the Faculty : **Dr. Umesh Gupta**

Discipline : **Electronics & Communication**

Semester : **4th**

Subject : **Analog Circuit (PCC-ECE206G)**

Lesson Plan Duration: **15 weeks (from January, 2020 to April, 2020)**

Week	Theory		Practical	
	Lecture Day	Topic (including assignment / test)	Practical Day	Topic
1st	1st	Introduction to BJT & FET	1st	To study Bridge Rectifier with or without filter
	2nd	Biasing Scheme for BJT & FET Amplifier.		
	3rd	Working and various features of various types of Biasing Configuration(CE/CS,CB/CG,CC/CD)		
2nd	1st	Q-Point, Bias Stability, Related Numerical.	2nd	To design a simple common emitter(CE) amplifier circuit using BJT and find its gain and frequency response.
	2nd	Amplifier Model: Transconductance Amplifier, Transresistance Amplifier, Voltage Amplifier, Current Amplifier.		
	3rd	Small Signal Analysis of Both BJT & FET.		
3rd	1st	Low Frequency Transistor Model and estimation of input resistance,output resistance,voltage gain.	3rd	To design a Differential Amplifier using BJT and calculate its gain and frequency response.
	2nd	Low Frequency Analysis of Multistage Amplifier		
	3rd	Design Procedure of Particular Specification.		
4th	1st	High Frequency Transistor Model	4th	To design RC coupled single stage BJT amplifier and determination of the gain, frequency response, input and output impedance
	2nd	Frequency Response of Single stage and Multistage Amplifier		
	3rd	Frequency Response of Cascode Amplifier		
5th	1st	Working Operation of Class A power Amplifier and calculation of their Power efficiency.	5th	To design a BJT Emitter Follower and determination of the gain, input and output impedance.
	2nd	Working Operation of Class B power Amplifier and calculate efficiency.		
	3rd	Working Operation of Class C, D & AB Power Amplifier.		

6th	1st	Feedback Topology: Voltage Series, Voltage Shunt, Current Series, Current Shunt.	6th	To design and test the performance of BJT-RC Phase shift Oscillator.
	2nd	Effect of Negative Feedback on Gain, Bandwidth, Noise, Impedance.		
	3rd	Concept of Stability,Gain Margin and Phase Margin.		
7th	1st	Basic Concept of Oscillator, Barkhausen Criterion of Oscillation.	7th	Internal Viva-1
	2nd	Working Principle of RC Phase shift Oscillator, Calculation of their Freq.		
	3rd	Working Principle of Wein Bridge Oscillator, Calculation of their Freq.		
8th	1st	Working Principle of Hartley Oscillator, Calculation of their Freq.	8th	To design and test the performance of BJT-Hartley Oscillator.
	2nd	Working Principle of Colpitts Oscillator, Calculation of their Freq.		
	3rd	Working Principle of Clapp Oscillator, Calculation of their Freq.		
9th	1st	Working of 555 Timer as Astable configuration	9th	To design and test the performance of BJT – Colpitt Oscillator
	2nd	Working of 555 Timer as Monostable configuration		
	3rd	Class Test		
10th	1st	Basic Concept of Operational Amplifier.	10th	To design an Astable Multivibrator using 555 timer
	2nd	Ideal vs Practical OpAmp.		
	3rd	Block Diagram of OPAMP.		
11th	1st	Design Specification of Balance Input Balance Output.	11th	To design a monostable multivibrator using 555 timer
	2nd	Design Specification of Balance Input UnBalance Output.		
	3rd	Design Specification of UnBalance Input Balance Output.		
12th	1st	Design Specification of UnBalance Input UnBalance Output.	12th	To design Schmitt trigger using Op-Amp and verify its operational characteristics.
	2nd	Calculation of Common Mode Gain, Differential Gain, CMRR, ICMR of each Topology.		
	3rd	Working of Schmitt Trigger and their Application.		

13th	1st	Design of Current Mirror and its Variant.	13th	To design and test the performance of BJT-Wein Bridge Oscillator.
	2nd	V-I Characteristics of OPAMP.		
	3rd	Calculation of Output resistance and Minimum Sustainable Voltage.		
14th	1st	Maximum Usable Load.	14th	OP-AMP as Inverting,Non Inverting,Integrator and differentiator.
	2nd	Numerical Related to Biasing		
	3rd	Numerical Related Power Amplifer.		
15th	1st	Revision of Important topics Unit 1	15th	Internal Viva-2
	2nd	Revision of Important topics Unit 2		
	3rd	Revision of Important topics Unit 3		