Textbook:

DPG Institute of Technology and Management
Sector 34, Gurugram HR 122004

Lesson Plan

Course Name : Linear Integrated Circuit Applications

Faculty Name : Ms. ARCHANA

No. of Lecture Hours/Week	**3**	**Exam Hours**	**3**
Total No. of Lecture Hours	**31**	**Exam Marks**	**75**
Course Code:	**PEC-ECE-413-G**		

Course Objectives :

1. To analyse different types of op amp.
2. To understand op amp with feedback and frequency.
3. Design the various applications of op amp, PLL and Timer.
4. Understand the applications of specialized linear IC applications.

Lecture No.	**Topics to be covered**	**Teaching Methodology**	**Class Activity/ Event**
SECTION A (UNIT – 1) (CO 305.1)			
1.	Balanced, unbalanced amplifiers	Chalk &Talk	Group discussion
2.	output differential amplifiers	PPT/Smart board	Q&A session
3.	FET differential amplifier	PPT/ Smart board	Quiz
4.	current mirrors, level Translators	Chalk &Talk	Practical example discussion
5.	cascade configuration of amplifiers	Chalk &Talk	Group discussion
6.	operational amplifiers	Chalk &Talk	Listed Applications

7.	Introduction to ideal OP-AMP	NPTEL https://youtu.be/kiiA6WTCQn0?si=LqTiuukmolG10t13	Discussed op amp studied earlier
8.	Characteristic Parameters	Chalk &Talk	Quiz
9.	Practical OP-AMP, its equivalent circuit and op-amp circuit configurations.	PPT	Group Discussion
SECTION B (UNIT – 2) (CO 305.2)			
10.	Op-amp with negative feedback and frequency response: Block diagram representation of feedback amplifier	NPTEL https://youtu.be/wfkzz1rg-xk?si=n2CEgRsjScNRUhvJ	Draw and label diagram
11.	voltage series feedback, voltage shunt feedback amplifiers	Chalk &Talk	Draw block diagram
12.	differential amplifiers	Chalk &Talk	Revised concept
13.	frequency response compensating network	PPT	Group Discussion
14.	Frequency response of internally compensative op-amp and non- compensating op-amp.	PPT	Debate
15.	High frequency op- amp equivalent circuit	PPT	Diagram practice
16.	open loop gain V/s frequency	Chalk &Talk	Noted comparison
17.	Closed loop frequency response, circuitstability, slew rate.	PPT	Revision of slew rate
SECTION C (UNIT – 3) (CO 305.3)			
18.	DC, AC amplifiers, peaking amplifier, summing	PPT	Group Dicussion

19.	scaling, averaging and instrumentation amplifier	PPT	Draw Diagram
20.	differential input output amplifier, voltage to current converter, current to voltage converter,	Chalk &Talk	Learn about cnverters
21.	very high input impedance circuit, integration and differential circuit,	Chalk &Talk	Quiz
22.	wave shaping circuit, active filters	NPTEL https://youtu.be/q9cRpDsh0lg?si=irNP737XQUHxYjL0	Done practically using CRO
23.	Oscillators	PPT	Learn use of positive feedback
SECTION D (UNIT – 4) (CO 305.3)			
24.	Specialized linear IC applications:	Chalk &Talk	Discussion
25.	555 timer IC	PPT	Draw pin diagram
26.	(monostable & astable operation) and its applications	Chalk &Talk	Noted applications
27.	Universal active filter	Chalk &Talk	Diagram and equations
28.	PLL	NPTEL https://youtu.be/T9pLoa-7TTM?si=JsaoyLh8i50Ioul5	Quiz
29.	power amplifier,	PPT	Discussion
30.	8038 IC	Chalk &Talk	Draw Diagram
31.	Class Test	Revision	Test

Textbook :

1. R.A. Gayakwaed , OP-amps and Linear Integrated circuits .

Reference Book :
1. K.R.Botkar , Integrated circuit

Course Outcome :

At the end of the course, the student will be able to:
CO 305.1 Design linear and non-linear applications of op-amps.
CO 305.2 Design the applications using Timer and PLL.
CO 305.3 Design the applications using Voltage regulator and Function generator ICs

CO-PO/PSO Mapping :

CO Statement	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
CO1	3	1	3	2		1							1	2	3
CO2	2	2				2							2	2	1
CO3	1	1	2	1									3	1	1