Department of Electronics & Telecommunication Engineering

B.Tech. II Year

Lesson Plan

Subject Code: EC25565 Subject Name: Analog Circuits

Lecture No.	Topic Covered (Unit No.)
1	**Unit 1**: Review of BJT configurations and its biasing techniques
2	Introduction to small signal model of BJT using h-parameter & r-π model
3	Derivation of r-π small signal model of BJT
4	Analysis of different BJT configurations using small signal model
5	Analysis of different BJT configurations using small signal model (contd..)
6	Small signal model of MOSFET and analysis of different MOSFET configurations.
7	Analysis of different MOSFET configurations and numericals
8	Frequency response of amplifiers at low & High frequencies. F_β , F_T parameters for CE configuration and its effect on β
9	**Unit 2**: Frequency response of RC coupled amplifier & Introduction to cascading of amplifiers
10	Cascading of amplifiers, its effect on freq. Response, gain and B.W & numericals , Darlington pair analysis.
11	Introduction to Tuned Amplifier
12	Introduction to large signal analysis using Load Line & classification of Power amplifiers.
13	Efficiency & Power Dissipation calculation of direct coupled & Class – A amplifiers
14	Efficiency & Power Dissipation calculation of transformer coupled Class – A & Class-AB amplifiers
15	Efficiency & Power Dissipation calculation of Class – B Push-pull (complementary symmetry) amplifiers
16	Introduction to switching amplifiers, Class-D Amplifier
17	**Unit 3**: Introduction to feedback theory, Effect of negative feedback on various amplifier parameters
18	Analysis of negative feedback topologies
19	Introduction to oscillator circuits, Barkhausens criteria, Analysis of RC phase shift,
20	Analysis of Wien bridge oscillator, Crystal oscillator
21	Analysis of Hartley, Colpitt's oscillator
22	**Unit 4**: Introduction to operational amplifier IC's, and its internal architecture, Study of op-amp IC
23	Analysis of differential amplifier, Current mirror, Level shifter circuit.
24	Various parameters of Ideal & practical op-amp (CMRR, Slew Rate etc.) & its measurement
25	Frequency response of op-amp and concept of virtual ground. Op-amp

	applications: Adder, Subtractor
26	Op-amp applications: I to V & V to I converter Integrator, Differentiator
27	Op-amp applications: Instrumentation Amplifier, Inverting & Non-inverting configuration
	Unit 5:
28	Non-Linear Op-amp applications: Precision Rectifier, sample and hold circuit, Log and Antilog amplifier
29	Op-amp applications: Op-amp as comparator, Schmitt trigger and its hysteresis diagram.
30	Op-amp applications: square & Triangular wave generator, Zero crossing detector
31	Introduction of op-amp based filters