

Department of Electrical & Electronics Engineering

Lesson Plan & Work-done Diary for AY:2024-25, ODD Semester

Course with Code: Analog Electronic Circuits –BEE303					Faculty: Dr. Sathish KR		Semester & Section: III	
Class No.	Date planned (DD/MM)	Topics to be covered	TLP Planned	Class No.	Date of Conduction (DD/MM)	Topics Covered	TLP Executed	Remarks if any deviation
	MODULE-1							
1		Diode Circuits: Basics, V-I Characteristics, Rectifier	ICT + Chalk & Talk					
2		Diode clipping circuits, Diode clamping circuits.	ICT + Chalk & Talk					
3		Transistor Biasing and Stabilization: The operating point, load line analysis DC analysis and design of fixed bias circuit	ICT + Chalk & Talk					
4		Emitter stabilized bias circuit, Collector to base bias circuit	Chalk & Talk					
5		Voltage divider bias circuit, Modified DC bias with voltage feedback, Numerical solving	Chalk & Talk					
6		Bias stabilization and stability factors for fixed bias circuit, Numerical solving	Chalk & Talk					
7		Collector to base bias circuit and voltage divider bias circuit, bias compensation, Transistor switching circuits, Numerical solving	ICT + Chalk & Talk					
8		Collector to base bias circuit and voltage divider bias circuit, bias compensation, Transistor switching circuits, Numerical solving	Chalk & Talk					

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MODULE-2								
9		Transistor at Low Frequencies: Hybrid model, H-parameters for CE, CC and CB modes	ICT + Chalk & Talk					
10		Mid-band analysis of single stage amplifier, Simplified hybrid model.	ICT + Chalk & Talk					
11		Analysis for CE, CB and CC(emitter voltage follower circuit) modes, Numerical solving.	Chalk & Talk					
12		Millers Theorem and its dual, analysis for collector to base bias circuit and CE with un bypassed emitter resistance	ICT + Chalk & Talk					
13		Transistor frequency response: General frequency considerations, Effect of various capacitors on frequency response	Chalk & Talk					
14		Miller effect capacitance, high frequency response, hybrid - pi model,	Chalk & Talk					
15		CE short circuit current gain using hybrid-pi model,	Chalk & Talk					
16		Multistage frequency effects Numerical Solving & VTU QP discussion	ICT + Chalk & Talk					

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MODULE 3								
17		Module-3: Multistage amplifiers: Cascade connection,.	Chalk & Talk					
18		Analysis for CE-CC mode, CE-CE mode	Chalk & Talk					
19		CASCODE stage-unbypassed and bypassed emitter resistance modes.	ICT + Chalk & Talk					
20		Darlington connection using h-parameter model.	ICT+ Chalk & Talk					
21		Feedback Amplifiers: Classification of feedback amplifiers, concept of feedback, general characteristics of negative feedback amplifiers	Chalk & Talk					
22		Input and output resistance with feedback of various feedback amplifiers	Chalk & Talk					
23		Input and output resistance with feedback of various feedback amplifiers	ICT+ Chalk & Talk					
24		Analysis of different practical feedback amplifier circuits	ICT+ Chalk & Talk					

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	MODULE 4							
25		Module-4: Power Amplifiers: Classification of power amplifiers, Analysis of class A amplifiers,.	ICT + Chalk & Talk					
26		Analysis of Class B amplifiers.	ICT + Chalk & Talk					
27		Analysis of Class C and Class AB amplifiers.	Chalk & Talk					
28		Distortion in power amplifiers, second harmonic distortion, harmonic distortion in Class B amplifiers, cross over distortion and elimination of cross over distortion	Chalk & Talk					
29		Oscillators: Concept of positive feedback, frequency of oscillation for RC phase oscillator,	Chalk & Talk					
30		Wien Bridge oscillator, Tuned oscillator circuits.	ICT + Chalk & Talk					
31		Hartley oscillator, Colpitt's oscillator.	Chalk Talk					
32		Crystal oscillator and its types.	Chalk Talk					

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	MODULE 5							
33		Module-5: Construction, working and characteristics of JFET (enhance and Depletion type)	Chalk & Talk					
34		Construction, working and characteristics of MOSFET (enhance and Depletion type)	Chalk & Talk					
35		Biasing of JFET. Fixed bias configuration, self-bias configuration, voltage divider biasing.	ICT + Chalk & Talk					
36		Biasing of MOSFET. Fixed bias configuration, self-bias configuration, voltage divider biasing.	ICT + Chalk & Talk					
37		Analysis and design of JFET (only common source configuration with fixed bias) amplifiers.	Chalk & Talk					
38		Analysis and design of JFET (only common source configuration with fixed bias) amplifiers.	Chalk & Talk					
39		Analysis and design of MOSFET amplifiers.	ICT + Chalk & Talk					
40		Analysis and design of JFET MOSFET amplifiers.	ICT + Chalk & Talk					

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Lab Session No.	Date planned (DD/MM)	Topics to be covered	TLP Planned	Class No.	Date planned (DD/MM)	Topics to be covered	TLP Planned	Class No.
	Lab Sessions							
1		Orientation Class: Introduction of course Module, Device Usage CRO, Single Generator, Multimeter, Power Supply..etc	Practical Session					
2		Experiments on series, shunt and double ended clippers and clampers.	Practical Session					
3		Design, simulation and Testing of Full wave – centre tapped transformer type and Bridge type rectifier circuits with and without Capacitor filter. Determination of ripple factor, regulation and efficiency.	Practical Session					
4		Static Transistor characteristics for CE, CB and CC modes and determination of h parameters	Practical Session					
5		Frequency response of single stage BJT and FET RC coupled amplifier and determination of half power points, bandwidth, input and output impedances	Practical Session					
6		Design and testing of BJT -RC phase shift oscillator for given frequency of oscillation.	Practical Session					
7		Design, simulation (MATLAB) and testing of Wien bridge oscillator for given frequency of oscillation.	Practical Session					
8		Design and testing of Hartley and Colpitt’s oscillator for given frequency of oscillation.	Practical Session					
9		Determination of gain, input and output impedance of BJT Darlington emitter follower with and without bootstrapping	Practical Session					
10		Design and testing of Class A and Class B power amplifier and to determine conversion efficiency	Practical Session					
11		Design and simulation of Full wave – centre tapped transformer type and Bridge type rectifier circuits with and without Capacitor filter using MATLAB. Determination of ripple factor, regulation and efficiency.	Practical Session					

	Activity	Planned	Actual	Remarks
1	Theory Classes	40		
2	Assignments/Quizzes/ Self study	5		
3	Tutorials/ Extra classes			
4	Internal Assessments	3		
5	ICT based Teaching (% of usage in Curriculum)	50%		
6	Laboratory Session	11 Practical Sessions/ batch		
Planning			Execution	
Faculty Signature:			Faculty Signature:	
HoD Signature:			HoD Signature:	