II B.Tech - I Semester (20EC3101) ELECTRONIC DEVICES AND CIRCUITS LAB

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Int. Marks Ext. Marks Total Marks

15 35 50

Pre-Requisites: Physics

Course Objectives:

- To observe the characteristics of BJT, FET and UJT
- To plot the frequency response of BJT and FET amplifiers
- To design and implement feedback amplifier circuits

Note: The students are required to design the circuit and perform the simulation using Circuit Lab / Partsim /Equivalent Industrial Standard Licensed simulation software tool. Further they are required to verify the result using necessary hardware equipment.

List of Experiments:

- 1. Common Emitter Characteristics Part A: Input Characteristics Part B: Output Characteristics
- 2. Transistor as a Switch
- 3. FET Characteristics Part A: Drain Characteristics Part B: Transfer Characteristics
- 4. UJT Characteristics
- 5. Common Emitter Amplifier
- 6. Common Collector Amplifier
- 7. Common Source FET Amplifier
- 8. Determination of f_T of a given transistor
- 9. Voltage Shunt Feedback Amplifier
- 10. Current Series Feedback Amplifier
- 11. RC Phase Shift Oscillator / Wein Bridge Oscillator
- 12. Colpitts Oscillator/Hartley Oscillator

Equipment required:

Software:

- 1. Circuit Lab / Partsim/ Equivalent Industrial Standard Licensed simulation software tool.
- 2. Computer Systems with required specifications

Hardware:

- 1. Regulated Power supplies
- 2. Analog/Digital Storage Oscilloscopes
- 3. Analog/Digital Function Generators
- 4. Digital Multi-meters
- 5. Decade Resistance Boxes/Rheostats
- 6. Decade Capacitance Boxes
- 7. Ammeters (Analog or Digital)
- 8. Voltmeters (Analog or Digital)
- 9. Active & Passive Electronic Components

Course Outcomes:

After successful completion of the course, the students can be able to:

S.No	Course Outcome								
1	Understand the characteristics of BJT, FET and UJT and obtain their parameters								
2	Plot the switching action of a BJT	L3							
3	Observe the frequency responses of various amplifiers like CE, CC and CS amplifiers by implementing them using both hardware and software	L2							
4	Analyse the mechanism of Feedback amplifiers	L4							
5	Design and implement both LC and RC oscillators	L6							

Correlation of COs with POs & PSOs:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2	2	-	-	2	-	-	-	3	-	-	-	2	1
CO2	1	2	2	-	3	-	-	-	3	-	-	-	2	2
CO3	2	2	2	-	3	-	-	-	3	-	-	-	3	3
CO4	2	2	2	1	3	-	-	-	3	-	-	-	3	3
CO5	3	3	2	2	3	-	-	-	3	-	-	-	3	3