

**2EC03: ELECTRONIC DEVICES AND CIRCUITS LABORATORY
CREDITS - 1 (LTP:0,0,1)**

Course Objective:

To provide practical knowledge about various electronic devices and circuits.

Teaching and Assessment Scheme:

Teaching Scheme (Hours per week)			Credits	Assessment Scheme				Total Marks
L	T	P		Theory Marks		Practical Marks		
			ESE	CE	ESE	CE		
0	0	2	1	0	0	40	60	100

LIST OF EXPERIMENTS:

- 1 To obtain frequency response single stage and 2-stage direct coupled transistor amplifier.
- 2 Plot the transfer and drain characteristics of n-channel J-FET and calculate its parameters, like, drain resistance, mutual conductance and amplification factor.
- 3 Plot the transfer and drain characteristics of n-channel MOSFET and calculate its parameters, like, drain resistance, mutual conductance and amplification factor.
- 4 Build/test Transformer coupled class-A Power amplifier.
- 5 Determine the efficiency of class-B push pull power amplifier.
- 6 To study and calculate frequency of Wien Bridge Oscillator.
- 7 To construct a relaxation oscillator using UJT, to measure the frequency of oscillation and comparing it with the theoretical value.
- 8 Measurement of input and output offset voltage of 741 ICs.
- 9 To configure op-amp in voltage follower mode and to measure its slew rate.
- 10 To design Triangular wave generator using op-amp and verify its operations with measurements.
- 11 Design Schmitt trigger circuit using op-amp and take measurements.
- 12 To measure the relevant parameters of an IC phase-locked loop (PLL)
- 13 Build/test mini project based on EDC Course.

List of References:

1. Millman Halkias “*Integrated Electronics*”, (2011) 2nd Edition, Mc Graw Hill.
2. Robert Boylestad and Louis Nashelsky, “*Electron Devices and Circuit Theory*”, (2008), 10th edition, Pearson Prentice Hall.
3. Sedra/Smith, “*Microelectronic Circuits*”, (2010), 6th Edition, Oxford University,
4. Ramakant A. Gaikwad, “*Opamp and Linear Integrated Circuits*”, (2009), 4th Edition, PHI.
5. J. Michael Jacob, “*Analog integrated circuit applications*”, (200), Prentice Hall.
6. David Bell, “*Electronic Devices & Circuits*”, (2008), 5th Edition, Oxford Publications.

Course Outcomes (COs):

By learning this course students will be able to ...

1. Understand & Analyze BJT circuits at low and high-frequency.

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2. Design Building Blocks of Amplifiers.
3. Categorize various audio frequency power amplifier circuits and their comparison.
4. Study and measure various OPAMP parameters and its applications.
5. Design Feedback oscillator circuits.
6. Analyze Signal Generators and Waveform-Shaping Circuits and applications like PLL, FLL.