1.25 Core P10 – Analog Systems and Applications Lab

Analog Systems and Applications	
60 class hours	**2 Credits**
General Topics: Discussion on the operational principles of the relevant circuits used in the experiments.	
List of Practical	

1. To study V-I characteristics of PN junction diode and Light emitting diode (LED) (using both current and voltage source).
2. To study the V-I characteristics of a Zener diode and its use as voltage regulator.
3. Study of V-I & power curves of Solar Cells and find maximum power point and efficiency.
4. To study the characteristics of a Bipolar Junction Transistor in CE configuration.
5. To study the frequency response of voltage gain of a RC – coupled transistor amplifier.
6. To design inverting, non- inverting and buffer amplifiers using Op-amp (741/351) for dc voltage.
7. To design a Wien bridge oscillator for given frequency using a Op-Amp.
8. To add dc voltages using Op-amp in inverting and non-inverting mode.
9. a) To investigate the use of an op-amp as an Integrator.

   b) To investigate the use of an op-amp as a Differentiator.
10. To design a CE transistor amplifier of a given gain (mid-gain) using voltage divider bias.
11. To study the various biasing configurations of BJT for normal class A operation.
12. To design a Phase Shift Oscillator of given specification using Op-Amp.
13. To study the Colpitt's Oscillator.
14. To design a digital to analog converter (DAC) of given specifications.
15. To study the analog to digital converter (ADC) IC.
16. To design a precision Differential amplifier of given I/O specification using Op-

Amp.

17. To design a circuit to simulate the solution of a $1^{st}/2^{nd}$ order differential equation.
18. To design inverting amplifier using Op-amp (741/351) and study its frequency response
19. To design non-inverting amplifier using Op-amp (741/351) & study its frequency response
20. To study the zero – crossing detector and comparator.
21. Using Schmitt trigger and associated circuit (with OPAMP) generate different wave forms.

Reference Books

- Basic Electronics: A text lab manual, P.B. Zbar, A.P. Malvino, M.A. Miller, 1994, Mc-Graw Hill.
- OP-Amps and Linear Integrated Circuit, R. A. Gayakwad, 4th edition, 2000, Prentice Hall.
- Electronic Principle, Albert Malvino, 2008, Tata Mc-Graw Hill.
- Electronic Devices & circuit Theory, R.L. Boylestad & L.D. Nashelsky, 2009, Pearson