

ANALOG AND DIGITAL CIRCUITS LAB

Course Code	23EE3552	Year	III	Semester	I
Course Category	Professional Core	Branch	EEE	Course Type	Lab
Credits	1.5	L-T-P	0-0-3	Prerequisites	EEEW, AC
Continuous Internal Evaluation:	30	Semester End Evaluation:	70	Total Marks:	100

Course Outcomes	
Upon successful completion of the course, the student will be able to	
CO1	Understand basic applications of op-amp circuits, realization of digital circuits (L2)
CO2	Illustrate the operation of oscillator circuits, BJT amplifiers, PLL, combinational & sequential logic circuits (L3)
CO3	Verify the operation of digital circuits such as arithmetic, data routing, registers and counters. (L3)
CO4	Analyze diode clipper/clamper circuits and transistor biasing, data converters, full adder/subtractor and op-amp applications (L4)
CO5	Conduct experiments as a team / individual by using equipment available in the laboratory Make an effective report based on experiments

Contribution of Course Outcomes towards achievement of Program Outcomes & Strength of correlations (3:High, 2: Medium, 1:Low)														
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1				3										
CO2	3			3								1	3	2
CO3	3			3								1	3	2
CO4		3		3	2							1	3	2
CO5									3	2	1	2		

SYLLABUS (Any 5 of the Following Experiments are to be conducted from each PART)		
Expt .No	Part-A	Mapped CO
1	Analysis of clipper and clamper circuits	CO4 CO5
2	Analysis of self-bias to a transistor (BJT).	CO4 CO5
3	Basic applications of op-amp like adder, subtractor, differential amplifier average amplifier	CO1 CO5
4	Determination of frequency of Wien Bridge oscillator and RC-phase shift oscillator.	CO2 CO5
5	Analysis of Integrator and Differentiator Circuits using IC 741	CO4 CO5

6	Plot the frequency response of CE amplifier to determine the bandwidth	C02 C05
7	Generation of square wave using IC 741	C04 C05
8	Verify the PLL characteristics using IC 565	C02 C05
9	Analysis of 8 bit A to D and D to A circuits	C04 C05
PART-B		
1	Design of Full adder and Full Subtractor using logic gates.	C04 C05
2	Realization of parallel adder/subtractor using IC 7483.	C01 C05
3	Implementation of 3 to 8 line decoder using logic gates and IC 7445	C02
4	Implementation of 8 to 1 multiplexer using logic gates and IC 74151.	C05
5	Verify the operation of master-slave JK flip-flop using IC7476	C02 C05
6	Implementation of the following shift registers using IC7495. SISO b) SIPO c) PISO d) PIPO	C03 C05
7	Realization of Boolean functions with PROM/ PAL/ PLA	C01 C05
8	Implementation of Mod-8 synchronous up/down counters using flip-flops	C03 C05
9	Implementation of 4 bit Ring Counter and Johnson Counter using D flip-flops/J-K flip-flops.	C03 C05

Learning Resources	
Text Books:	
1. J. Millman, C.Halkias ,”Electronic Devices and Circuits”, Tata Mc-Graw Hill, 2nd Edition, 2010.	
2. D. Roy Choudhury,” Linear Integrated Circuits”, New Age International (p) Ltd, 2 nd Edition, 2003	
3.Thomas L. Floyd,”Digital Fundamentals”, Pearson Education, 2009	