

DIGITAL AND ANALOG CIRCUITS LAB

Course Code	20EE3452	Year	II	Semester	II
Course Category	Professional Core	Branch	EEE	Course Type	Lab
Credits	1.5	L-T-P	0-0-3	Prerequisites	BEEE Lab
Continuous Internal Evaluation:	15	Semester End Evaluation:	35	Total Marks:	50

Course Outcomes	
Upon successful completion of the course, the student will be able to do either hard ware /software	
CO1	Construct the truth tables of Boolean functions using logic gates (L2)
CO2	Apply the essential information on combinational circuits to check the results of the adders, decoders and parity generator. (L3)
CO3	Analyze operation of shift registers, counters and op-amp based differentiator and integrator circuits. (L4)
CO4	Analyze operation of arithmetic circuits, filter circuits and Data convertors using Op-amp. (L4)
CO5	Conduct experiments as a team / individual by using equipment /software available in the laboratory
CO6	Make use an effective report based on experiments.

Mapping of course outcomes with Program outcomes (CO/ PO/PSO Matrix)														
Note: 1- Weak correlation 2-Medium correlation 3-Strong correlation														
* - Average value indicates course correlation strength with mapped PO														
COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1		3		3									3	1
CO2	3			3	3								3	1
CO3		3		3	3								3	1
CO4		3		3									3	1
CO5									3				3	1
CO6										3			3	1

Syllabus		
Any Ten Experiments(H/W or Simulation)		
Expt. No.	Contents	Mapped CO
I	Implementation of Basic gates using Universal Gates.	CO1, CO5, CO6
II	Simplification of the given Boolean functions using K-map and implementation using logic gates	CO1, CO5, CO6
III	Develop and verification of Full adder and Full Subtractor using logic gates	CO2, CO5, CO6

IV	Implementation of the BCD to 7-segmet decoder	C02, C05,C06
V	Implementation of an even parity generator for a 3- bit input	C02, C05,C06
VI	Implement and Verify the operation of a 4-bit Shift Register.	C03, C05,C06
VII	Implement and Verify the operation of 3-bit Ripple Counters using JK-FF.	C03, C05,C06
VIII	Simulate the RC differentiator using Op-Amp	C03, C05,C06
IX	Simulate the RC integrator using Op-Amp	C03, C05,C06
X	Analyze Adder and Subtractor circuits using Op-Amp	C04, C05,C06
XI	Analyze LPF,HPF filter using Op-Amp .	C04, C05,C06
XII	Construct 4 bit DAC using OP-Amp	C04, C05,C06

Learning Resources
Text Books
1. Michael D. Ciletti, M. Morris Mano, Digital Design, 4/e. Pearson Education, 2007 2. Ramakant A. Gayakwad, Op-Amps and Linear Integrated Circuits, Fourth Edition, Pearson 2015
Reference Books
1. Thomas L Floyd ,Digital Fundamentals , 11th Edition ,Pearson education 2015 2. John F. Wakerly, Digital Design Principles and Practices, 4/e, Pearson Education, 2008.
e- Resources & other digital material
1. http://www.ece.ubc.ca/~saifz/eece256.html 2. http://nptel.iitm.ac.in/courses/Webcourse-contents/IIT%20Guwahati/digital_circuit/frame/index.html
