

22EE380 INTEGRATED CIRCUITS
LABORATORY

Category L T P Credit

PCC - - 2 1

Preamble

This laboratory gives a practical exposure to the students to learn the characteristics of analog and digital ICs that are used in most of the electronic circuits. Student can also conceive ideas on different electronics circuits have analog and digital ICs and can be able to design and implement it for particular applications.

Prerequisite

22EE260 - Electronics Circuits and devices

22EE280 - Electronics Circuits and devices Lab

Course Outcomes

On the successful completion of the course, students will be able to

CO Number	Course Outcome Statement	Weightage*** in %
CO1	Analyze the performance of the designed circuits like amplifier, filters using operational amplifier for the given applications.	30
CO2	Design the Multivibrator circuits using 555 timers for the given specifications.	5
CO3	Design the voltage regulators using linear Regulator ICs for the given specifications.	5
CO4	Design the Combinational digital circuits for the given requirements using suitable digital ICs.	20
CO5	Design the Digital sequential circuits for the given requirements using suitable digital ICs.	20
CO6	Develop IC based electronic system for a real-world applications	20

*** Weightage depends on Bloom's Level, number of contact hours

Mapping with Programme Outcomes and Programme Specific Outcomes

COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PS O1	PS O2
CO 1	S	S	M	M	S	M		M	M	M				S
CO 2	S	S	M	M	S	M		M	M	M				S

CO 3	S	S	M	M	S	M		M	M	M				S
CO 4	S	S	M	M	S	M		M	M	M				S
CO 5	S	S	M	M	S	M		M	M	M				S
CO 6	S	S	M	M	S	M		M	M	M				S

S- Strong; M-Medium; L-Low

Assessment Pattern: Cognitive Domain

Cognitive Levels	Model Examination	Terminal Examination
Remember		
Understand		
Apply	50	50
Analyze	20	20
Evaluate		
Create		

Assessment Pattern: Psychomotor

Psychomotor Skill	Miniproject /Practical Component/Observation
Perception	
Set	
Guided Response	
Mechanism	20
Complex Overt Responses	10
Adaptation	
Origination	

List of Experiments/Activities with CO Mapping

E.No	Name of the experiment	CO	No. of sessions
1.	Characteristics of given Operational Amplifier	CO1	1
2.	Design of Comparator, Amplifier, Integrator, differentiator and Precision rectifiers using OP-AMP	CO1	1

	(Hardware /Simulation)		
3.	Design of Instrumentation Amplifier, Second order active filters using OP AMP/ FPAA (Hardware /Simulation)	CO1	1
4.	Design of V to I , I to V converter, and Oscillator circuits using OP AMP/FPAA (Hardware /Simulation)	CO1	1
5.	Design of Multivibrator circuits using 555 Timer ICs (Hardware /Simulation)	CO2	1
6.	Design of Voltage Regulator for given specification	CO3	1
7.	Realization of Boolean expression using universal gates.	CO4	1
8.	Realization of Full adder, Subtractor, Multiplexer, Demultiplexer, code converters, Decoder and encoder using suitable Digital ICs.(Hardware/ verilog simulation)	CO4	1
9.	Realization of shift Registers and counters using suitable Digital ICs. (Hardware/ verilog simulation)	CO5	1
10	Development of IC based electronic system for a real-world applications (selected by group of students)	CO6	2

Reference Books

1. Roy Choudhury and shall B.Jain, Linear Integrated circuits, Wiley Eastern Ltd, 5th edition, 2018
2. Jacob Millman & Christos C.Halkias- Integrated electronics, McGraw Hill Education; 2 edition ,2017
3. M.Morris Mano and Michael D.Ciletti, Digital Design, Sixth Edition, Pearson Prentice Hall, 2018

Course Designers:

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