I YEAR II SEMESTER					
D2525704	CMOS MIXED SIGNAL CIRCUIT DESIGN LAB	L	T	P	C
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Course Outcomes: At the end of the course, student will be able to (Four to Six)

		Knowledge Level (K)#
CO1	Implement discrete-time signal processing circuits tailored for mixed-signal system requirements	K4
CO2	Apply layout methodologies and design techniques specific to mixed-signal integrated circuits to ensure signal integrity and performance	K3
CO3	Design operational amplifiers optimized for operation in mixed-signal environments with appropriate gain, bandwidth, and stability	K5
CO4	Design high-speed comparators with enhanced resolution and low latency for time-critical mixed-signal application	K5
CO5	Develop data converters and RF circuits considering performance trade-offs in mixed-signal design scenarios.	K4

#Based on suggested Revised BTL

Mapping of course outcomes with program outcomes

Cycle	Syllabus	
Cycle 1	1) Fully compensated op-amp with resistor and Miller compensation 2) Comparator design: a. Linear Response b. Slew-rate limited	
Cycle 2	3) Switched capacitor circuits: i. Parasitic sensitive integrator ii. Parasitic insensitive integrator iii. Delay free integrators iv. Low Pass filter 4) Data converters (ADC, DAC for given specifications) 5) Layouts and parasitic extraction	

Text Books:

1. David Johns, Tony Chan Carusone and Kenneth Martin, Analog Integrated Circuit Design, Wiley, 2012, 2nd Edition.
2. Roubik Gregorian and Gabor C.Temes, Analog MOS integrated circuits for signal processing, Wiley, 1986.

Reference Books:

1. Roubik Gregorian, Introduction to CMOS Op-Amp and Comparators, Wiley,1999.
2. Alan Hastings, Theart of Analog Layout, Wiley, 2005

Other Suggested Readings:

1. NPTELCourses(https://onlinecourses.nptel.ac.in/noc23_ee142/preview)

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