Sardar Patel Institute of Technology

Bhavan's Campus, Munshi Nagar, Andheri (West), Mumbai-400058-India
(Autonomous Institute Affiliated to University of Mumbai)

Course Code	Course Name	Teaching Scheme (Hrs/week)			Credits Assigned			
		L	T	P	L	T	P	Total
EXL502	Design with Linear Integrated Circuits Laboratory	--	--	2	--	--	1	1
		Examination Scheme						
		ISE		ESE			Total	
				Practical		Oral		
		40		10		10		60

Pre-requisite Course Codes	EXC502 (Design with Linear Integrated Circuits)

After successful completion of the course, student will be able to

Course Outcomes	CO1	Validate electrical characteristics of given ICs.
	CO2	Design, debug and test electronic circuit using ICs like op-amp 741, IC 555, IC 566, IC723, etc.
	CO3	Validate circuits by simulation using modern tools available like ngspice and LTspice, TINA, Multisim.
	CO4	Design, develop and troubleshoot the complete electronic system for typical applications like speed control of DC Motor, Temperature control, development of signal conditioning circuits for various transducers.
	CO5	Infer the data sheet of electronic components/ICs

Exp. No.	Experiment Details	Ref.	Marks
1	To measure (a) Input bias current, (b) Input offset current,(c)Input offset voltage & (d) Slew rate of the given Op-Amp IC	1,2,3	5
2	Design, Implement and analyze Schmitt Trigger Circuit using given Op-Amp IC and also Square Wave, Triangular Wave Generator Circuit using given Op-Amp IC.	1,2,3	5
3	Design, Implement and analyze Monostable Multivibrator Circuit using given Timer and its operation as divide by N frequency.	1,2,3	5
4	Design, Implement and analyze Voltage Regulator Circuit using given Voltage Regulator IC.	1,2,3	5
5	Design, Implement and analyze given application using given ICs like Op-Amp, DAC, Multiplier, and VCO with Analog System Trainer Kit - TEXAS INSTRUMENTS.	1,2,8	5
6	To measure the performance specifications of given ADC, DAC ICs and interface these ICs to Microcontroller to perform ADC and DAC conversions.	1,2,3	5
7	Design, Simulate and analyze the given problem statement (circuit) using Circuit Simulation S/W preferably NI-Multisim /TINA/SPICE. (Please refer to the extra sheet attached).	1,2,4,5,6	5

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8	Score in Quiz on TSE-2017	7	5
		Total Marks	**40**

References:

[1] D. Roy Choudhury and S. B. Jain, "*Linear Integrated Circuits*", New Age International Publishers, 4th Edition.

[2] David A. Bell, "*Operation Amplifiers and Linear Integrated Circuits*", Oxford University Press, Indian Edition.

[3] DLIC Laboratory Manual

 [4] www.ti.com

[5] www.ni.com

[6] www.pspice.com

[7] TSE-2017 Brochure

[8] Analog System Trainer Manual by Texas Instruments.