



SWARNANDHRA COLLEGE OF ENGINEERING & TECHNOLOGY

Accredited by National Board of Accreditation,
AICTE, New Delhi, Accredited by NAAC with "A" Grade – 3.32 CGPA
Recognized under 2(f) & 12(B) of UGC Act 1956, Approved by AICTE, New Delhi.
Permanent Affiliation to JNTUK, Kakinda
SEETHARAMPURAM, W.G.DT., NARSAPUR-534200, (Andhra Pradesh)

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

LESSION PLAN

Course Code	Course Title	Semester	Branch	Contact Period /Week	Academic Year	Semester commencement date
19EC5T04	LINEAR IC APPLICATIONS (R19)	V	EEE	5	2021-22	04-10-2021

COURSE OUTCOMES

After completion of the course student are able to

1	Describe fundamental of IC Fabrication process.(K1,K2)
2	Explain about Op-amp and different applications based on operational amplifier.(K2,K3, K4)
3	Construct the circuits of waveform generators based on operational amplifier and IC555 timers.(K3)
4	Construct D to A & A to D converters.(K3)

Unit No	OutCome/ Bloom's Level	Topics/Activity	Reference Text book	Contact Periods	Delivery Method	
1.	CO1: Describe fundamental of IC Fabrication process. (K1,K2)	1. INTEGRATED CIRCUIT FABRICATION			Chalk & Talk, PPT, Active Learning & Tutorial	
		1.1	IC classification	T1		1
		1.2	IC chip size and circuit complexity	T1		1
		1.3	Fundamental of monolithic IC technology	T1		1
		1.4	Epitaxial growth	T1		1
		1.5	Masking and etching	T1		1
		1.6	Diffusion of impurities	T1		1
		1.7	IC Package Types and temperature ranges	T1		1
		1.8	Fabrication of diodes.	T1		1
		1.9	Fabrication of resistance.	T1		1
		1.10	Fabrication of capacitance.	T1		1
		TOTAL		10		
2.		2. OPERATIONAL AMPLIFIER				
		2.1	Differential Amplifier	T1,T2		1
		2.2	Differential Amplifier Configurations	T1,T2		1



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-	CO2 Explain about Op-amp and different applications based on operational amplifier.(K2,K3, K4)	2.3	Differential Amplifier Properties	T1,T2	1	Chalk & Talk, PPT, Active Learning & Tutorial		
		2.4	Characteristics of OP-Amps	T1,T2	1			
		2.5	Op-amp Block Diagram	T1,T2	1			
		2.6	Level translator	T1,T2	1			
		2.7	Ideal Op-amp specifications	T1,T2	1			
		2.8	Practical Op-amp specifications	T1,T2	1			
		2.9	Op-Amp parameters	T1,T2	1			
		2.10	AC characteristics of 741 op-amp	T1,T2	1			
		2.11	DC characteristics of 741 op-amp & its features.	T1,T2	1			
		2.12	Input & Output offset currents and voltages	T1,T2	1			
		2.13	slew rate, CMRR, PSRR	T1,T2	1			
		TOTAL					13	
		3.	CO2 Explain about Op-amp and different applications based on operational amplifier.(K2,K3, K4)	3. LINEAR AND NON-LINEAR APPLICATIONS OF OP- AMPS				
3.1	Linear applications of op- amps: Inverting amplifier			T1,T2	1			
3.2	Linear applications of op- amps: Non-inverting amplifier			T1,T2	1			
3.3	Linear applications of op- amps: Integrator			T1,T2	1			
3.4	Linear applications of op- amps: differentiator			T1,T2	1			
3.5	Linear applications of op- amps: Difference amplifier			T1,T2	1			
3.6	Linear applications of op- amps: AC amplifier			T1,T2	1			
3.7	Linear applications of op- amps: V to I converter.			T1,T2	1			
3.8	Linear applications of op- amps: I to V converter.			T2,T2	1			
3.9	Non-linear applications of op- amps: Comparators			T1,T2	1			
3.10	Non-linear applications of op- amps: Triangular wave generators			T1,T2	1			
3.11	Non-linear applications of op- amps: Square wave generators			T1,T2	1			
TOTAL				11				
4.	CO3: Construct the circuits of waveform generators based	4. TIMERS & PHASE LOCKED LOOPS						
		4.1	Introduction to 555 timer	T1,T2	1			
		4.2	functional diagram of 555 timer	T1,T2	1			
		4.3	Monostable operation of 555	T1,T2	1			



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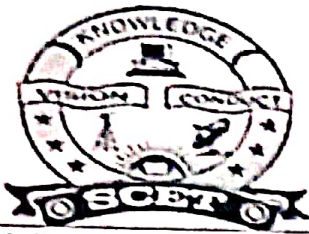
	on operational amplifier and IC555 timers (K3)		timer			Chalk & Talk, PPT, Active Learning & Seminars
		4.4	Astable operation of 555 timer	T1,T2	1	
		4.5	Applications of Monostable Multivibrator	T1,T2	1	
		4.6	Applications of Astable Multivibrator	T1,T2	1	
		4.7	Schmitt Trigger	T1,T2	1	
		4.8	Introduction to Phase Locked Loop (PLL565)	T1,T2	1	
		4.9	Voltage Controlled Oscillator (IC566)	T1,T2	1	
TOTAL				09		
5.	CO4: Construct D to A & A to D converters.(K3)	5. D to A & A to D CONVERTERS				Chalk & Talk, PPT, Active Learning & Project based learning
		5.1	Introduction D to A & A to D converters	T1,T2	1	
		5.2	Basic DAC techniques	T1,T2	1	
		5.3	Weighted resistor DAC	T1,T2	1	
		5.4	R-2R ladder DAC	T1,T2	1	
		5.5	Inverted R-2R DAC	T1,T2	1	
		5.6	Different types of ADC's	T1,T2	1	
		5.7	Parallel comparator type ADC	T1,T2	1	
		5.8	Counter type ADC	T1,T2	1	
		5.9	Successive approximation ADC	T1,T2	1	
		5.10	Dual slope ADC	T1,T2	1	
		5.11	Specifications of DAC	T1,T2	1	
		5.12	Specifications of ADC	T1,T2	1	
TOTAL				12		
Revision classes				02		
TOTAL NO. OF CLASSES PROPOSED PER PERIOD'S					60	

Text Books:

S.No.	AUTHORS/BOOK TITLE/EDITION(latest)/PUBLISHER/YEAR OF PUBLICATION
1	D. Roy Chowdhury, Linear Integrated Circuits - New Age International (p) Ltd, 2nd Edition, 2003.
2	Ramakanth A. Gayakwad, "Op-Amps & Linear ICs" -, 4 th Edition PHI, 2010

Reference Books:

S.No.	AUTHORS/BOOK TITLE/EDITION(latest)/PUBLISHER/YEAR OF PUBLICATION
1	Sergio Franco, Design with Operational Amplifiers & Analog Integrated Circuits - McGraw Hill, 1988.
2	S.Sahayana, VSK Bhaskaran, "Linear integrated circuits" 1 st Edition TMH, 2008.
3	David A Bell "Operational Amplifiers & Linear ICs", 2 nd Edition, Oxford Uni. Press, 1997.



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Web Details

1	https://lecturenotes.in/s/809-linear-integrated-circuits-and-applications
2	https://nptel.ac.in/courses/108/108/108108111/

	Name	Signature with Date
i. Faculty	Mr. V. Satya Kishore.	<i>V Satya Kishore</i>
ii. Course Coordinator	Mr. V. Satya Kishore.	<i>V Satya Kishore</i>
iii. Module Coordinator	Dr. K. Balamurugan.	<i>Balamurugan</i>
iv. Programme Coordinator	Dr. B. S. Rao.	<i>B. S. Rao</i>

Satya Kishore
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