

The Maharaja Sayajirao University of Baroda Polytechnic Diploma in Electronics & Communication Engg. (HPP)			ACADEMIC YEAR 2022-23		
Year	II	ANALOG ELECTRONICS(ELE3333)	Lecture/Lab Hrs per week	4/2	
Semester	I		Max marks	100	
Pre-Requisite: Basic Mathematics, Basic Electronics					
CO1	Analyse differential amplifier circuits, biasing methods, current mirrors, and level translation.				
CO2	Evaluate operational amplifier characteristics, operational amplifier performance parameters and frequency behavior.				
CO3	Implement DC/AC amplifiers, instrumentation stages, and basic converter circuits.				
CO4	Explain comparator-based functions including switching, shaping, detection, and log/antilog operations.				
CO5	Construct active filters, oscillators, and IC-555 timing circuits.				
BT	1. Remember 2. Understand 3. Application 4. Analysis 5. Evaluation 6. Creation				
COURSE CONTENT/SYLLABUS					
Unit	Unit Name		Hrs	Weightage	CO
1	Differential amplifier, configurations, DC & AC analysis, constant current bias, current mirror, cascaded differential amplifier stages, level translator.		10	18	CO1
2	OPAMP, inverting, non-inverting, differential amplifier configurations, negative feedback, voltage gain, input & output impedance, Bandwidth. Input offset voltage, input bias and offset current, Thermal drift, CMRR, PSRR, Frequency response.		10	18	CO2
3	DC, AC amplifiers, summing differential amplifier, instrumentation amplifier, V to I and I to V converters, Integrator, Differentiator.		8	10	CO3
4	Comparators, Schmitt Trigger, Clipping and Clamping circuits, Absolute value circuits, Peak detectors, Sample and hold circuits, Log and antilog amplifiers.		10	18	CO4
5	First order low/ high/ bandpass, band reject active filters, All pass filter, Phase shift oscillator, Wein bridge oscillator, L-C Oscillators, Square wave and triangular waveform generators.		10	18	CO5
6	IC 555, Astable, Monostable, Bistable timing circuits using Transistor and using ICs.		10	18	CO5
			58	100	
REFERENCE BOOKS:					
1.	Operational Amplifiers and Linear Integrated Circuits By Gaikwad R.A PHI 1990 Edition				
2.	Electronics Devices and Circuits By Millman Halkies TMH. 2000				