

Module No.	Unit No.	Topics	Hrs.
1.0		Integrated Circuit Biasing Techniques	06
	1.1	Active resistance, current source, current sink, simple current mirror, cascode current mirror	03
	1.2	Current and voltage references, Band gap reference generator	03
2.0		Single Stage MOS Amplifiers	08
	2.1	Common-source stage (with resistive load, diode connected load, current-source load, triode load, source degeneration), source follower, common-gate stage, cascode stage, folded cascode stage, simulation of CMOS amplifiers using SPICE	04
	2.2	Single-ended operation, differential operation, basic differential pair, large-signal and small-signal behavior, common-mode response, differential pair with MOS loads, simulation of differential amplifiers using SPICE	04
3.0		Noise in MOS Circuits	06
	3.1	Noise spectrum, correlated and uncorrelated noise sources, thermal noise, flicker noise, shot noise	02
	3.2	Representation of noise in circuits, noise in single stage CS, CD and CG amplifier	02
	3.3	Noise in differential pairs, noise bandwidth	02
4.0		CMOS Operational Amplifier	05
	4.1	Design of Current Mirror Load Differential Amplifier	02
	4.2	Design of two stage Operational Transconductance Amplifier, OpAmp Compensation techniques	03
5.0		Data Converter Fundamentals	06
	5.1	Analog versus digital discrete time signals, converting analog signals to data signals, sample and hold characteristics	03
	5.2	Mixed signal Layout issues, Floor planning, power supply and Ground issues, other interconnect Considerations	03
6.0		Data Converter Architectures	08
	6.1	DAC architectures, digital input code, charge scaling DACs, Cyclic DAC, pipeline DAC	04
	6.2	ADC architectures, flash, pipeline ADC, integrating ADC, and successive approximation ADC	04
		Total	39