

		National Institute of Technology Meghalaya An Institute of National Importance											CURRICULUM					
		Programme Master of Technology in VLSI and Embedded Systems					Year of Regulation 2018-19											
Department Electronics and Communication Engineering													Semester II					
Course Code	Course Name	Credit Structure				Marks Distribution												
		L	T	P	C	Continuous Evaluation	VIVA	Total										
EC 552	Analog System Design Lab	0	0	2	1	70	30	100										
Course Objectives	To know about the MOS models	Course Outcomes	CO1	Able to design the Amplifiers (Single stage, differential, Cascode Based)														
	To learn about the Amplifiers (Single stage, differential, Cascode Based) design and its frequency-based properties		CO2	Able to design the Current Mirrors, Current, Voltage Reference, Feedback and frequency compensation circuit														
	To learn about the Current Mirrors, Current, Voltage Reference, Feedback and frequency compensation circuit		CO3	Able to analyze the CMOS based design of Operational Amplifier														
	To learn designing of CMOS based Operational Amplifier																	
No.	COs	Mapping with Program Outcomes (POs)												Mapping with PSOs				
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3		
1	CO1	3	3	0	1	0	0	0	0	2	0	0	0	3	0	3		
2	CO2	3	3	0	1	0	0	0	0	2	0	0	0	2	0	2		
3	CO3	2	3	3	1	2	0	0	0	0	0	0	0	2	3	2		
SYLLABUS																		
No.	Content													Hours	COs			
	Suggested list of Experiments: 1. Analysis of the nmos and pmos as active load and current source, MOS models implementation 2. Design of Differential Amplifier. 3. Design of Current Mirror 4. Design of 2-stage OPAMP and analysis of the properties Slew rate, CMRR, PSRR, etc 5. Design of Cascode connection implementation in low noise amplifier (LNA) 6. Design of temperature insensitive biasing or PTAT 7. Design of voltage reference 8. Design of PLL 9. Design of VCO													12	CO1 CO2 CO3			
Total Hours													12					
Essential Readings																		
1. B. Razavi, Design of Analog CMOS Integrated Circuits, Tata McGraw Hill, 1st Edition, 2002.																		
2. P. R. Gray, P. J. Hurst, S. H. Lewis and R.G. Meyer, Analysis and Design of Analog Integrated Circuits, John Wiley and Sons, 5th Edition, 2009																		
3. P. E. Allen and D. R. Holberg, CMOS Analog Circuit Design, Oxford University Press, 2nd Edition, 2004																		
Supplementary Readings																		
1. R. J. Baker, H. W. Li and D. E. Boyce, CMOS Circuit Design Layout and Simulation, John Wiley and Sons, 3rd Edition, 2002.																		