30.7.2020

APRIL 2014

M	T	W	T	F	S	S
7	1	2	3	4	5	6
14	8	9	10	11	12	13
21	15	16	17	18	19	20
28	22	23	24	25	26	27
	29	30				

MARCH

Monday 17

WK 12 • 076-289

ECE468

ANALOG IC DESIGN

TAUGHT BY

- prof. abhishek srivastava
- prof. zia abbas

COURSE TOPICS

- basics of analog design
- MOS model for analog circuits
- large signal modeling
- incremental modeling
- MOS parasitics
- mismatches
- speed (f_T)
- passive components for IC design (R, C, L)
- biasing
- negative feedback for biasing

2014

30.7.2020
2

MARCH
18 Tuesday
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GUITAR CONCERT
QUOTES FROM AMP USERS

- introduction to layout
- gain - BW - swing - power - noise - area trade-offs

2. amplifier design
- review of single stage amplifiers
- Single-ended and differential amplifier designs
- g_m / I_d design technique
- sub-threshold design technique for low power consumption.
- techniques to increase gain of amplifiers
- active loads
- Cascode
- differential amplifier with current mirror load.
- mirror pole
- stability issues and utility of negative ~~gain~~ feedback in high gain amplifiers

2014

30.7.2020
3

MARCH
Wednesday 19
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APRIL 2014

M	T	W	T	F	S	S
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

3. operational amplifier design

- review of op-amp characteristics
- CMRR
- Offset
- single stage op-amp
- high gain op-amps - telescopic, two stage
- stability and frequency compensation
- fully differential amplifier (CFDA).
- common-mode feedback
- review of low noise
- low voltage op-amp design techniques.

4. other topics

- noise
- layout techniques
- effect of off chip components and packaging on ic design.

2014

30.7.2020

MARCH

20 Thursday

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- phase noise
- PLLs.

TEXT BOOKS

1. design of analog CMOS integrated circuits.
2. CMOS analog circuit design.
3. analysis and design of analog integrated circuits.

2014