

COURSE SYLLABUS - IC 776CA

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FALL 2003
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NATIONAL TECHNOLOGICAL UNIVERSITY
IC 776CA- FALL 2003 - 3 Units
Analysis & Design of VLSI Analog-Digital Interface Circuits
Professor Bernhard Boser
(UC Berkeley EECS 247)

Special Note: This syllabus reflects the sequence of lectures in the course as it was videotaped in the Fall of 2002. You must take the exams by the deadlines below. If you have a conflict, call BEFORE the deadline to arrange an alternative Time.

Reference Texts (not required, please see course website for additional reference material):

- B. Razavi, *Data Conversion System Design*, IEEE Press, 1995.
- R. Gregorian, G.C. Temes, *Analog MOS integrated circuits for Signal Processing*, Wiley, 1986.

TBA

Conference Call: There will be two conference calls with Prof. Boser during the semester. Details will be provided when available.

Tues. August 26

Lecture #1 – Analog Interface circuits overview

Thurs. August 28

Lecture #2 – Introduction to filters

Tues. September 2

Lecture #3 – Second-Order transfer functions

Thurs. September 4

Lecture # 4 – Noise and dynamic range

Conference Call Sign - In: You must call the Cal VIEW office (510) 642-5776 to sign up for the MANDATORY introductory conference call with Boris Murmann on 9/9.

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Tues. September 9	Lecture #5 – Higher order filters Conference Call - MANDATORY Introductory telephone discussion with Boris Murmann at 4 pm PT.
Thurs. September 11	Lecture #6 - Ladder filters HOMEWORK #1 DUE: BACKGROUND QUESTIONNAIRE IS DUE WITH HW #1. Must be postmarked no later than 9/11.
Tues. September 16	Lecture #7 – Finite amplifier bandwidth
Thurs. September 18	Lecture #8 – Sampling and reconstruction
Tues. September 23	Lecture #9 – SC filters.
Thurs. September 25	Lecture #10 – Bilinear transform HOMEWORK #2 DUE: Must be postmarked by than 9/25.
Tues. September 30	Lecture #11 – Digital filters
Thurs. October 2	Lecture #12 – Amplitude quantization
Tues. October 7	Lecture #13 – DFT testing
Thurs. October 9	Lecture #14 – D/A Converters HOME WORK #3 DUE: Must be postmarked by 10/9.
Tues. October 14	Lecture #15 – Sampling Conference Call Sign-In: You must call the Cal VIEW office (510) 642-5776 to sign up for the conference call with Boris Murmann on 10/16.
Thurs. October 16	Lecture #16 –ADC architectures Conference Call - Telephone discussion with at 4 pm PT.
Week of October 20- 24	MIDTERM EXAMINATION: ANY TIME THIS WEEK. MUST BE POSTMARKED BY 10/24.

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Tues. October 28	Lecture #17 – Flash converters
Thurs. October 30	Lecture #18 – Pipeline converters HOMEWORK #4 DUE: Must be postmarked by 10/30.
Tues. November 4	Lecture #19 – Oversampled A/D Converters
Thurs. November 6	Lecture #20 – 5 th order modulator example
Tues. November 11	VETERAN'S DAY HOLIDAY
Thurs. November 13	Lecture #21 – Tones
Tues. November 18	Lecture #22 – Nonlinearities in sigma-delta modulators HOMEWORK #5 DUE: Must be postmarked by 11/18.
Thurs. November 20	Lecture #23 – Decimation filters
Tues. November 25	Lecture #24 – Multi-rate decimation filters
Thurs. November 27	THANKSGIVING DAY HOLIDAY
Tues. December 2	Lecture #25 – Digital data receivers HOMEWORK #6 DUE: Must be postmarked by 12/2.
Thurs. December 4	Lecture #26 – Equalization
Tues. December 9	Lecture #27 – Offset control Conference Call Sign-Up: Please call the Cal VIEW office at 642-5776 to sign up for the conference call with Boris Murmann on 12/11.
Thurs. December 11	Conference Call: Telephone discussion to review for final exam with Boris Murmann at 4 pm PT.
Week of December 15 - 19	FINAL EXAMINATION: Must be postmarked by Fri. 12/19.