

ELE724 - CMOS Mixed-Mode Circuits and Systems

- **Course Outline**

<http://www.ee.ryerson.ca/undergraduate/dcd/ele724.html>

- **Key Knowledge to Be Acquired**

- Switching noise, analog & digital grounding, ESD Protection, clock and power distribution, fundamentals of ADCs, Nyquist ADCs (Flash, Pipelined, and Charge redistribution Successive Approximation ADCs), introduction to switched-capacitor networks, over-sampling ADCs, time-mode ADCs (voltage-to-time converters, time-to-digital converters, VCO quantizers, time-mode Nyquist ADCs, Time-mode noise-shaping ADCs) and Decimation filters.

- **Key Skills to Be Mastered**

Computer-aided design (CAD) tools from Cadence Design Systems for design and analysis of mixed-mode integrated circuits and systems. CAD tools for IC design are used extensively in both laboratories and course projects.

- **Potential Careers**

Integrated circuit engineers, RF circuit engineers, electronics system engineers, system integration engineers, electronics system test engineers, instrumentation engineers, embedded systems engineers, ...

- **Potential Employers**

Advanced Micro Devices, Cadence Design Systems, DALSA, Fresco Microchip, Gennum, Genesis Microchip, Kaben Wireless Silicon, Kapik Integration, Mitel Semiconductor, MOSAID Technologies, PMC-Sierra, Research-in-Motion, ST Microelectronics, Snowbush IP, Zarlink Semiconductors, ...

- **Graduate Studies**

Carleton, Calgary, Ryerson, Toronto, Waterloo, UBC, McGill, etc., have strong graduate programs in microelectronics and RF microelectronics.