ELE804 – Radio-Frequency Circuits and Systems

• **Course Outline**
  

• **Key Knowledge to Be Acquired**
  
  Historical perspective of cellular wireless communications, modulation schemes for wireless communications, characterization of RF circuits, architecture of RF transceivers (Heterodyne, zero-IF, low-IF), low-noise amplifiers, mixers, RF filters, frequency synthesizers, power amplifiers, and electromagnetic compatibility.

• **Key Skills to Be Mastered**
  
  Computer-aided design (CAD) tools from Cadence Design Systems and HP for design and analysis of radio-frequency integrated circuits and systems. CAD tools for radio-frequency circuit 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-Morton, ST Microelectronics, Snowbush IP, Zarlink Semiconductors, ...

• **Graduate Studies**
  
  Carleton, Ryerson, Toronto, Waterloo, UBC, and McGill have strong graduate programs in RF microelectronics.