

ELE 792 – Digital Signal Processing

- **Course Outline**

<http://www.ee.ryerson.ca/undergraduate/dcd/ele792.html>

- **Key Knowledge to Be Acquired**

This course teaches analysis and design of discrete-time signals and systems. Topics covered include: digital filter design, digital filter structures, finite length discrete transforms including Discrete Fourier Transform (DFT) and Discrete Cosine transform (DCT), realization of fast algorithms for the computation of DFT, Fast Fourier transform (FFT), implementation of discrete-time systems, floating-point and fixed-point representations, multi-rate signal processing. The course introduces numerous DSP applications to illustrate these concepts. The laboratory component reinforces DSP fundamentals through design and implementation of real-time algorithms.

- **Key Skills to Be Mastered**

Computer-aided signal processing analysis and simulation tools from Mathworks (Matlab and Simulink); real-time signal processing algorithm development tools (Code Composer Studio-CCS) from Texas Instruments used in the laboratory for implementation on TMS320C6713 DSK.

- **Potential Careers**

Embedded system designers and engineers, automotive system engineers, system integration engineers, multimedia system design engineers, communication system engineers, instrumentation engineers, ...

- **Potential Employers**

Agile Systems, Advanced Micro Devices, Agilent Technologies, Analog Devices, Mathworks, Cisco Systems, Microsoft, RealNetworks, Research-in-Motion, Silicon Optix, Spectrum Signal Processing, STI Medical Systems, TI, ...

- **Graduate Studies**

Alberta, Carleton, Calgary, McGill, Ryerson, Toronto, UBC, Waterloo, etc., have strong graduate programs in digital and multimedia signal processing.