ELE 714: Digital System Testing and Design-for-Testability

· **Course Outline**

http://www.ee.ryerson.ca/undergraduate/dcd/ele714.html

· **Key Knowledge to Be Acquired**

. Fault modeling, fault analyses, test pattern generation, test response analysis, and design techniques for better testability of digital circuits at various levels, such as gate-level and transistor level. Both combinational and sequential designs are studied. Reed-Muller technique, scan-design techniques, and LFSR (Linear Feedback Shift Register) techniques are among design techniques used to improve testability. Digital system design and testing. DC power lines, Memory testing, and Input/Output testing. Built-in self-test techniques. Scan techniques. Hardware/Software testing in Digital Designs.

· **Key Skills to Be Mastered**

Mathematical and structural approaches to testing. This course is much similar to calculus I and II coupled with elementary courses on digital circuits and transistor level designs. It helps see circuits from their testability properties and design for better ones.

· **Potential Careers**

Test Engineers, integrated circuit engineers, electronics system engineers, system integration engineers, instrumentation engineers, embedded systems engineers,…

· **Potential Employers**

Advanced Micro Devices, Cadence Design Systems, DALSA, Fresco Microchip, Gennum, Genesis Microchip , KabenWireless Silicon, KapikIntegration, MitelSemiconductor, MOSAID Technologies, PMC-Sierra, Research-in-Mortion, ST Microelectrnics, Snowbush IP, ZarlinkSemiconductors,...

· **Graduate Studies**

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