A) Course Title:
ENGG404 Engineering Safety and Risk Management – Leadership in Risk Management (ESRM-LRM)

B) Welcome to Engineering Safety and Risk Management - Leadership in Risk Management:
"As future engineering and business leaders, you will be confronted with a myriad of risks. Your job will be to manage those risks — all of them. If you focus just on financial risk, at best you will limit your success, at worst you will fail miserably. Apply the principles learned in this course and you will be prepared to make risk decisions competently; ignore these principles not only at your own peril but at the peril of the lives and well-being of your co-workers, neighbours, friends, family, and your community."

Adapted from "Vision 2020 Process Safety: The Journey Continues", Center For Chemical Process Safety, An AIChE Technology Alliance, April 2013.

C) Course Description:
ENGG 404 develops core competencies and proficiencies in the leadership principles and practices towards organizational effectiveness for successful risk management. Basic concepts and topics include: risk and consequences of loss incidents; risk management principles and practices; incident investigation, causation, root cause analysis; process safety management; the roles of government agencies, professional bodies and industry associations; workplace safety; risk-based decision-making processes; leadership and the "human factors side" of risk management. The course focusses on the principles and practices of leadership towards the effective application and implementation of risk management in major organizations across all engineering disciplines. Industry "virtual" tours, case studies, seminars and team projects specific to the student's engineering program will be used to develop competencies and proficiencies in applying leadership and organizational effectiveness for successful risk management.

D) Learning Objectives of this Course:
- This course holds that risk management is beneficial not only towards avoiding loss incidents but also towards improving productivity, efficiency, quality, and ultimately towards business sustainability. The course incorporates legal, ethical, and leadership / management responsibilities, and prepares students to effectively manage risk as future leaders / designers in their respective organizations.
- To give students a broad understanding of Engineering Safety and Risk Management and how it is applied using the incident investigation and root cause analysis work processes (which are pro-active when applied to learn from others), and an introductory understanding of management principles and best practices, particularly concerning the implementation of sound leadership principles for sound risk management in both process safety and occupational safety.
- To show the value of this discipline to industry in today's business environment, as well as demonstrate the importance of this expertise to the students' careers.
- To provide students with knowledge, tools, informed perspectives, and an opportunity to apply the knowledge and tools; collectively, these will shape their attitudes, set the foundation for establishing a sound set of positive values beneficial to organizations, and give the students a real life view of this subject.
- To learn and work in a team environment. A culture of class discussion is fostered!

E) ENGG404 is specifically about:
- The risk management work process with emphasis on:
  - The risk management system, its system elements and program, and how to identify its strengths and weaknesses, and
  - Managing the residual risk inherent in any operation or activity;
- Instruction on hazard / risk identification and analysis, process safety management and occupational safety in the work-place.
- The incident causation analysis, incident investigation, and root cause analysis work processes towards effective leadership and organizational effectiveness.
- The role and impact of leadership in work-place culture and work-place safety.

F) Assessment of Academic Achievement:

Assignment #1	5%
Assignment #2	5%
Mid-Term	15%
Quizzes	5%
Team Project	30% (progress report = 5%; final technical report = 20%; team self-evaluation = 2.5%; documented presentation = 2.5%)
Final Exam	40%
Total:	100%
Penalty	*5% for each seminar NOT attended.*