

## Course Outline

1. COURSE INFORMATION			
<b>Session Offered</b>	Winter 2019		
<b>Course Name</b>	Legal and Regulatory Issues		
<b>Course Code</b>	GEN TECH 4EM3		
<b>Date(s) and Time(s) of lectures</b>	C01: Monday 6:30pm to 9:30pm (classroom delivery) Location: MDCL 1010 (Michael G. DeGroot Centre for Learning and Discovery)		
<b>Program Name</b>	One of the following: Civil Engineering Infrastructure Technology, Software Engineering Technology, Power & Energy Engineering Technology, or Manufacturing Engineering Technology		
<b>Calendar Description</b>	This course introduces the student to various legal frameworks, regulatory requirements and international standards. Topics covered include ISO9000, ISO14000, and ISO1000 among others.		
<b>Instructor(s)</b>	Graham Nasby, P.Eng., PMP, CAP	E-Mail: nasbyg@mcmaster.ca Office Hours: 30mins following lectures	
2. COURSE SPECIFICS			
<b>Course Description</b>	This course provides an introduction to the legal, ethical, and regulatory frameworks, including associated regulations that professional engineers and related professions must work within in the Province of Ontario. The course has four applied assignments, midterm and final exam. To pass the course, students must pass both the assignments portion and cumulated passing grade on the midterm and final exam.		
<b>Instruction Type</b>	<b>Code</b>	<b>Type</b>	<b>Hours per term</b>
	C	Classroom instruction	36
	L	Laboratory, workshop or fieldwork	
	T	Tutorial	
	DE	Distance education	
	<b>Total Hours</b>		<b>36</b>
<b>Resources</b>	<b>ISBN</b>	<b>Textbook Title &amp; Edition</b>	<b>Author &amp; Publisher</b>
	<b>Required Text Book</b> ISBN10: 0-07-098521-9 ISBN13: 978-0-07-098521	Law for Professional Engineers, 4 <sup>th</sup> Edition	D.L. Marston, © 2008 McGraw-Hill
	<b>Optional Text Book</b> ISBN10: 0-17-650990-9 ISBN13: 978-0-17-650990-	Canadian Professional Engineering and Geoscience: Practice and Ethics, 5 <sup>th</sup> Edition	G. C. Andrews, © 2014 Nelson Education
	<b>Other Supplies</b>	<b>Source</b>	
	Occupational Health & Safety Act RSO 1990 and related regulations	Available via e-Laws Ontario: Free download <a href="https://www.ontario.ca/laws">https://www.ontario.ca/laws</a>	
<b>Prerequisite(s)</b>	Registration in Civil Engineering Infrastructure Technology, Software Engineering Technology, Power & Energy Engineering Technology or Manufacturing Engineering Technology		
<b>Corequisite(s)</b>	None		
<b>Antirequisite(s)</b>	None		

<p><b>Departmental Policies</b></p>	<ul style="list-style-type: none"> <li>• Students must maintain a GPA of 3.5/12 to continue in the program.</li> <li>• In order to achieve the required learning objectives, on average, B.Tech. students can expect to do at least 3 hours of “out-of-class” work for every scheduled hour in class. “Out-of-class” work includes reading, research, assignments and preparation for tests and examinations.</li> <li>• Where group work is indicated in the course outline, such collaborative work is mandatory.</li> <li>• <b>The use of cell phones, iPods, laptops and other personal electronic devices are prohibited from the classroom during the class time, unless the instructor makes an explicit exception.</b></li> <li>• Announcements made in class or placed on Avenue are considered to have been communicated to all students including those individuals that are not in class.</li> <li>• Instructor has the right to submit work to software to identify plagiarism.</li> </ul>
<p><b>Course Specific Policies</b></p>	<p>It is expected that students read the material that is coming under discussion prior to class. Students are expected to actively participate during class sessions offering insight, comment, reinforcement, argument, contrary views and underscoring examples.</p> <p><b>ASSIGNMENTS</b> There are three assignments in the course.</p> <p><b><u>Assign 1: Engineering Disaster: Safety Analysis</u></b></p> <ul style="list-style-type: none"> <li>• Assignment available via Avenue to Learn during week of January 7</li> <li>• Written report style submission in MS Word format.</li> <li>• Due Wed January 30, via Avenue to Learn.</li> </ul> <p><b><u>Assign 2: Legal Scenarios</u></b></p> <ul style="list-style-type: none"> <li>• Assignment available via Avenue to Learn during week of January 30</li> <li>• Written report style submission in MS Word format.</li> <li>• Due Wed February 13, via Avenue to Learn</li> </ul> <p><b><u>Assign 3: Ethics Scenarios</u></b></p> <ul style="list-style-type: none"> <li>• Assignment available via Avenue to Learn during week of March 4</li> <li>• Written report style submission in MS Word format.</li> <li>• Due Wed March 20 via Avenue to Learn</li> </ul> <p><b>Late assignments will have a deduction of 10% per day up to three days from the due date. After three days from the due date, assignments will not be accepted.</b></p> <p><b>Marked assignments will be returned to students at the lecture that occurs 2 weeks after the assignment due date.</b></p> <p><b>MIDTERM &amp; FINAL EXAM</b> Please note that there <u>are no make-up or deferred midterm examinations</u> in this course. If, for any reason, a student misses a midterm examination, the value of that examination will be applied to the cumulative final examination (<b>i.e. a missed midterm exam will result in the cumulative final examination being weighted at 70% of the final grade</b>).</p> <p><u>MSAF is not permissible for weights on evaluations (i.e. midterm, final exam)</u></p>

	<p>that are greater than or equal to 25%. Any attempt to submit a falsified MSAF for this course for a missed midterm exam constitutes academic dishonesty and charges may be filed with the Office of Academic Integrity.</p> <p>Final exam is <u>cumulative</u>.</p> <p>To pass the course, students must pass both the assignments portion and achieve a cumulated passing grade on the midterm and final exam</p>	
<b>3. SUB TOPIC(S)</b>		
W1: Mon, January 7	<p><b>Course Introduction &amp; Health &amp; Safety #1</b></p> <ul style="list-style-type: none"> <li>• History of Workplace Injuries/Fatalities</li> <li>• Ont. Occupation Health and Safety Act</li> <li>• Internal Responsibility System</li> <li>• Workplace Hazards</li> <li>• Hazard Controls</li> <li>• High Risk Activities</li> <li>• Hazard Identification</li> <li>• Hierarchy of Safety Controls</li> <li>• Decision Making &amp; Risk Assessment</li> <li>• Enforcement &amp; Ministry of Labour</li> <li>• WSIB &amp; Insurance</li> <li>• Protecting yourself as an Engineer</li> </ul>	<p>READINGS: Lecture Notes</p> <p>FURTHER READINGS: Ontario Occupational Health and Safety Act O.Reg. 213 O.Reg. 851</p> <p><b>ASSIGN #1:</b> Engineering Disaster: Safety Analysis available on A2L during this week.</p>
W2: Mon, January 14	<p><b>Engineering Law #1</b></p> <ul style="list-style-type: none"> <li>• Why Laws Exist</li> <li>• Canadian Legal System</li> <li>• Legal Entities – Persons &amp; Corporations</li> <li>• Law of Torts</li> <li>• Limitations Act</li> <li>• Introduction to Contracts</li> <li>• Five Aspects of a Contract in Canada</li> </ul>	<p>READINGS: Marston CH 1-7</p>
W3: Mon, January 21	<p><b>Guest Speaker</b> Workplace Health and Safety</p>	
W4: Mon, January 28	<p><b>Engineering Law #2</b></p> <ul style="list-style-type: none"> <li>• Review of Contracts</li> <li>• Problems with Contracts</li> <li>• Purchasing Products and Services</li> <li>• Tendering and Contract A &amp; B</li> <li>• Contract Interpretation</li> <li>• Discharge of Contracts</li> <li>• Breach &amp; Fundamental Breach</li> <li>• Solving Contract Problems</li> </ul>	<p>READINGS: Marston CH 8-20 and Lecture Notes</p> <p><b>ASSIGN #1: Engineering Disaster: Safety Analysis Wed Jan 30 @ 11:59pm (A2L)</b></p> <p><b>ASSIGN #2:</b> Legal Scenarios available on A2L during this week.</p>
W5: Mon, February 4	<p><b>Engineering Law #3</b></p> <ul style="list-style-type: none"> <li>• How a Client Hires an Engineer</li> <li>• Concurrent Liability</li> <li>• Construction Contracts &amp; Projects</li> <li>• Bonds and Performance Guarantees</li> <li>• Construction Liens</li> <li>• Construction Contract Administration</li> </ul>	<p>READINGS: Marston CH 21-27,30 and Lecture Notes</p>

	<ul style="list-style-type: none"> <li>• CA Workflows and Terms</li> <li>• Change Orders</li> <li>• Introduction to CCDC Contracts</li> <li>• Other Standard Form Contracts</li> </ul>	
W6: Mon, February 11	<b>Engineering Law #4</b> <ul style="list-style-type: none"> <li>• Ont. Professional Engineers Act</li> <li>• Professional Responsibilities</li> <li>• Why you don't want to go to court!</li> <li>• Arbitration and Mediation</li> <li>• How to Protect Yourself as an Engineer</li> <li>• Knowing when you need a lawyer</li> <li>• Professional Practice Insurance</li> </ul>	READINGS: Marston CH 28-31 and Lecture Notes  <b>ASSIGN #2: Legal Scenarios Due: Wed, Feb 13 @ 11:59pm (A2L)</b>
<b>W7: Monday, February 18 – Family Day – No Class</b>		
Mid-term Recess: Monday, February 18 to Sunday, February 24, 2019		
W8: Mon, February 25	<b>Midterm Exam (7:00-9:00pm)</b> <ul style="list-style-type: none"> <li>• Focus on Engineering Law + Health &amp; Safety</li> </ul>	
W9: Mon, March 4	<b>Ethics and Professional Conduct #1</b> <ul style="list-style-type: none"> <li>• Legal Definition of an Engineer</li> <li>• Regulations and Self-Governance</li> <li>• Engineers vs. Architects vs. Others</li> <li>• Licensing and path to licensure</li> <li>• Engineering Seal</li> <li>• Discipline and Enforcement</li> <li>• Professional Duties and Responsibilities</li> <li>• Engineer's Duty to Report</li> <li>• Consulting Engineers</li> <li>• Code of Conduct</li> </ul>	READINGS: Andrews CH 1-5, 9 and Lecture Notes  <b>ASSIGN #3: Ethics Scenarios available on A2L during this week.</b>
W10: Mon, March 11	<b>Ethics and Professional Conduct #2</b> <ul style="list-style-type: none"> <li>• Principles of Ethics and Justice</li> <li>• Ethical Theories</li> <li>• Employee Engineer</li> <li>• Consulting Engineer</li> <li>• Common Dilemmas in the Workplace</li> <li>• Client-Consultant Relationship</li> <li>• Professional Competence</li> <li>• Reviewing Work of Others</li> <li>• Conflict of Interest</li> <li>• Drawings and Seals</li> <li>• Environmental Ethics</li> <li>• Getting your Engineering License</li> <li>• Maintaining your License &amp; Competency</li> </ul>	READINGS: Andrews CH 10-13 and Lecture Notes  <b>Note: Wed, Mar 15 is the last day to drop the course – see McMaster Academic Calendar</b>

W11: Mon, March 18	<b>Ontario Design Codes, Regulations &amp; Statutes #1</b> <ul style="list-style-type: none"> <li>• Regulations vs. Codes vs. Standards</li> <li>• Industry Consensus Standards &amp; Codes</li> <li>• Technical Reports &amp; RP documents</li> <li>• Government Regulations</li> <li>• Global vs. Federal vs. Provincial Codes</li> <li>• Building Code</li> <li>• Fire Code</li> <li>• Plumbing Code</li> <li>• Ontario Electrical Safety Code</li> <li>• ASME B31.1</li> <li>• Other Codes &amp; Standards</li> <li>• Technical Safety &amp; Standards Authority</li> <li>• Electrical Safety Authority</li> <li>• Enforcement of Codes/Regulations</li> <li>• Technical Societies (Role of)</li> <li>• Standards Council of Canada (Role of)</li> <li>• Permits</li> <li>• Guidance for the Engineer</li> </ul>	READINGS: Lecture Notes  <b>ASSIGN #3: Ethics Scenarios</b> <b>Due: Wed Mar 20 @ 11:59pm (A2L)</b>
W12: Mon, March 25	<b>Environmental Regulations</b> <ul style="list-style-type: none"> <li>• Canadian Regulations</li> <li>• Ontario Regulations</li> <li>• Municipal Regulations</li> <li>• Permits, Assessments, and Reporting</li> <li>• Impact on Engineering Projects</li> </ul> <b>Professional Practice Guidance</b> <ul style="list-style-type: none"> <li>• Best Practices to avoid design mistakes</li> <li>• Navigating Various Codes/Regulations</li> <li>• QA/QC for Engineering Design</li> <li>• QA/QC during Construction Projects</li> <li>• Common Problems in Construction</li> <li>• Review for writing the PPE Exam</li> <li>• Keeping your skills up to date</li> </ul>	READINGS: Andrews CH 13-15 and Lecture Notes
W13: Mon, April 1	<b>Course Review</b> <ul style="list-style-type: none"> <li>• Health and Safety</li> <li>• Engineering Law</li> <li>• Code of Conduct</li> <li>• Code of Ethics</li> <li>• Codes and Regulations</li> <li>• Environmental &amp; Social responsibility</li> <li>• Guidance for the PPE Exam</li> <li>• Information about Course Final Exam</li> </ul>	
Final Exam  Date/Time to be announced.	<b>Final Exam (7:00-9:30pm)</b> <ul style="list-style-type: none"> <li>• 2.5 hours closed book exam</li> <li>• Covers entire course</li> </ul>	
Classes end: Tuesday, April 9, 2019 Final examination period: Thursday, April 11 to Monday, April 29, 2019 All examinations MUST be written during the scheduled examination period.		

Note that this structure represents a plan and is subject to adjustment term by term.

The instructor and the University reserve the right to modify elements of the course during the term. The University may change the dates and deadlines for any or all courses in extreme circumstances. If either type of modification becomes necessary, reasonable notice and communication with the students will be given with explanation and the opportunity to comment on changes.

4. ASSESSMENT OF LEARNING *including dates*	Weight
Assignments (3 at 10% each)	30%
Mid-term Test (Engineering Law and Health and Safety)	30%
Final examination (tests cumulative knowledge)	40%
<b>TOTAL</b>	<b>100%</b>

Percentage grades will be converted to letter grades and grade points per the University calendar.

#### 5. LEARNING OUTCOMES

1. Demonstrates an understanding of the legal duties of engineering and design professionals, and the legal environment in which they operate.
2. Demonstrates an understanding of the code of conduct and ethical standards that apply to engineering and design professionals.
3. Comprehends how construction projects are typically structured and administered in order to manage the legal, liability and site risks associated with these projects for all involved parties.
4. Applies the Ontario Occupational Health and Safety Act to the engineering environment to ensure compliance on work.
5. Comprehends the purpose and intent behind Environmental Regulations, and how both the engineer and the worker can work safely while also protecting the environment.
6. Distinguishes the various codes, regulations and standards that engineering and design professionals must contend with for both operational and project-related work.
7. Recognizes the path to becoming a licensed engineer and the requirements to maintain an engineering license.

#### 6. POLICIES

##### Anti-Discrimination

The Faculty of Engineering is concerned with ensuring an environment that is free of all discrimination. If there is a problem, individuals are reminded that they should contact the Department Chair, the Sexual Harassment Officer or the Human Rights Consultant, as soon as possible.

[http://www.mcmaster.ca/policy/General/HR/Discrimination\\_Harassment\\_Sexual\\_Harassment-Prevention&Response.pdf](http://www.mcmaster.ca/policy/General/HR/Discrimination_Harassment_Sexual_Harassment-Prevention&Response.pdf)

##### Academic Integrity

You are required to exhibit honestly and use ethical behaviour in all aspects of the learning process. Academic credentials you earn are rooted in principles of honesty and academic integrity.

Academic dishonesty is to knowingly act or fail to act in a way that results or could result in unearned academic credit or advantage. This behaviour can result in serious consequences e.g. the grade of zero on an assignment, loss of credit with a notation on the transcript (notation reads: "Grade of F assigned for academic dishonesty"), and/or suspension or expulsion from the university.

It is your responsibility to understand what constitutes academic dishonesty. For information on the various kinds of academic dishonesty please refer to the Academic Integrity Policy, located at: <http://www.mcmaster.ca/policy/Students-AcademicStudies/AcademicIntegrity.pdf>.

The following illustrates only three forms of academic dishonesty:

1. Plagiarism. E.g. the submission of work that is not own or for which other credit has been obtained
2. Improper collaboration in group work
3. Copying or using unauthorized aids in tests and examinations.

## Requests for Relief for Missed Academic Term Work (Assignments, Mid-Terms, etc.)

The McMaster Student Absence Form is an on-line self-reporting tool for Undergraduate Students to report absences for:

- 1) Relief for missed academic work worth less than 25% of the final grade resulting from medical or personal situations lasting up to three calendar days:
  - Students may submit a maximum of one academic work missed request per term. It is the responsibility of the student to follow up with instructors immediately (within the 3 day period that is specified in the MSAF) regarding the nature of the accommodation. All work due in that time period however can be covered by one MSAF.
  - MSAF cannot be used to meet religious obligation or celebration of an important religious holiday, for that has already been completed or attempted or to apply for relief for any final examination or its equivalent.
- 2) For medical or personal situations lasting more than three calendar days, and/or for missed academic work worth 25% or more of the final grade, and/or for any request for relief in a term where the MSAF has not been used previously in that term:
  - Students must visit their Associate Dean's Office (Faculty Office) and provide supporting documentation.

## E-Learning Policy

Consistent with the Bachelor of Technology's policy to utilize e-learning as a complement to traditional classroom instruction, students are expected to obtain appropriate passwords and accounts to access Avenue To Learn for this course. Materials will be posted by class for student download. It is expected that students will avail themselves of these materials prior to class. Students should be aware that, when they access the electronic components of this course, private information such as first and last names, user names for the McMaster e-mail account, and program affiliation may become apparent to all other students in the course. The available information is dependent on the technology used. Continuation in this course will be deemed consent to this disclosure. If you have any questions or concerns about this disclosure please discuss this with the course instructor. Avenue can be accessed via <http://avenue.mcmaster.ca>.

## Communications

It is the student's responsibility to:

- Maintain current contact information with the University, including address, phone numbers, and emergency contact information.
- Use the University provided e-mail address or maintain a valid forwarding e-mail address.
- Regularly check the official University communications channels. Official University communications are considered received if sent by postal mail, by fax, or by e-mail to the student's designated primary e-mail account via their @mcmaster.ca alias.
- Accept that forwarded e-mails may be lost and that e-mail is considered received if sent via the student's @mcmaster.ca alias.
- Check the McMaster/Avenue email and course websites on a regular basis during the term.

## Protection of Privacy Act (FIPPA)

The Freedom of Information and Protection of Privacy Act (FIPPA) applies to universities. Instructors should take care to protect student names, student numbers, grades and all other personal information at all times. For example, the submission and return of assignments and posting of grades must be done in a manner that ensures confidentiality.

<http://www.mcmaster.ca/univsec/fippra/fippra.cfm>

## Academic Accommodation of Students with Disabilities Policy

Students who require academic accommodation must contact Student Accessibility Services (SAS) to make arrangements with a Program Coordinator. Academic accommodations must be arranged for each term of study. Student Accessibility Services can be contacted by phone 905-525-9140 ext. 28652 or e-mail [sas@mcmaster.ca](mailto:sas@mcmaster.ca). For further information consult McMaster's policy for Academic Accommodation of Students with Disabilities

<http://www.mcmaster.ca/policy/Students-AcademicStudies/AcademicAccommodation-StudentsWithDisabilities.pdf>

Students must forward a copy of the SAS accommodation to the instructor of each course and to the Program Administrator of the B.Tech. Program immediately upon receipt. If a student with a disability chooses NOT to take advantage of a SAS accommodation and chooses to sit for a regular exam, a petition for relief may not be filed after the examination is complete. <http://sas.mcmaster.ca>

### **Student Code of Conduct**

The Student Code of Conduct (SCC) exists to promote the safety and security of all the students in the McMaster community and to encourage respect for others, their property and the laws of the land. McMaster University is a community which values mutual respect for the rights, responsibilities, dignity and well-being of others. The purpose of the Student Code of Conduct is to outline accepted standards of behavior that are harmonious with the goals and the well-being of the University community, and to define the procedures to be followed when students fail to meet the accepted standards of behavior. All students have the responsibility to familiarize themselves with the University regulations and the conduct expected of them while studying at McMaster University.

<http://judicialaffairs.mcmaster.ca/pdf/SCC.pdf> and <http://www.mcmaster.ca/policy/Students-AcademicStudies/StudentCode.pdf>