



Course Outline

Course Outilité					
1. COURSE INFORMA	TION				
Session Offered	Winter	2024			
Course Name	_	Legal and Regulatory Issues			
Course Code		GENTECH 4EM3 / SFGNTECH 4EM3			
Date(s) and Time(s) of		•			
lectures	CO1. IVIC	C01: Mondays 6:30pm to 9:30pm (synchronous online delivery)			
rectures	Microso	Microsoft Teams (primary) – link to be provided via course website on A2L			
	Zoom (backup, if primary does not work and advised) – link to be provided via A2L				
Program Name	GENTECH 4EM3 (graded version): One of the following: Civil Engineering				
6	Infrastructure Technology, Manufacturing Engineering Technology, Power and				
		Energy Engineering Technology or Software Engineering Technology			
	SFGNTECH 4EM3 (pass/fail version): Software Engineering Technology				
Calendar Description	This cou	ırse is an introdu	ction to the	legal, ethical, an	d regulatory frameworks that
	professional engineers and related professions must observe in the Province of				observe in the Province of
	Ontario.				
Instructor(s)	Graham	Graham Nasby, P.Eng., PMP, CAP E-Mail: nasbyg@mcmaster.ca			mcmaster.ca
			(Office Hours: 30n	nin online following lectures
		Note: Please use the <u>nasbyg@mcmaster.ca</u>			
		email address for all correspondence.			
		Please do not use the A2L messaging feature.			
2. COURSE SPECIFICS					
Course Description	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				•
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		three applied assignments, midterm and final exam. To pass the course, students must pass both the assignments portion and cumulated passing grade on the			
	-	n and final exam.	•	tion and camala	ted passing grade on the
	Code		Туре		Hours per term
Instruction Type	С	Classroom instr		ne Lectures)	36
,,	L	Laboratory, workshop or fieldwork			
	Т	Tutorial	· · ·		
	DE	Distance educa	tion		
		1		Total Hours	36
Resources		ISBN	Textbook	Title & Edition	Author & Publisher
-	Require	d Text Book	Law for	Professional	D.L. Marston, © 2019
	ISBN10:	126013590X	Enginee	rs, 5 th Edition	McGraw-Hill, 432 pages
		ISBN13: 9781260135909			
		e Text Book		Professional	D.L. Marston, © 2018
		0-07-098521-9 978-0-07-098521	Engineers, 4 th Edition		McGraw-Hill, 400 pages
		I Text Book	Canadia	n Professional	G. C. Andrews, © 2018
		0176764674		eering and	Nelson Education,
				cci ing ana	
	ISBN13:	978-0176764678		e: Practice and , 6 th Edition	504 pages





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	Alternate Optional Text	Canadian Professional	G. C. Andrews, © 2014	
	Book ISBN10: 0-17-650990-9	Engineering and Geoscience: Practice and	Nelson Education,	
	ISBN13: 978-0-17-650990-	Ethics, 5 th Edition	472 pages	
	Other Supplies	-	urce	
	Occupational Health &		Ontario: Free download	
	Safety Act RSO 1990 and		ontario.ca/laws	
	related regulations			
Prerequisite(s)	Registration in Civil Engir	neering Infrastructure Techno	ology, Software Engineering	
	Technology, Power & End	ergy Engineering Technology	or Manufacturing	
	Engineering Technology			
Corequisite(s)	None			
Anti-requisite(s)	None			
Departmental Policies	Students must maint	ain a GPA of 3.5/12 to contin	nue in the program.	
	 In order to achieve tl 	ne required learning objectiv	es, on average, B.Tech.	
	students can expect	to do at least 3 hours of "out	-of-class" work for every	
	scheduled hour in cla	ass. "Out-of-class" work inclu	udes reading, research,	
	assignments and pre	paration for tests and exami	nations.	
	Where group work is	indicated in the course outli	ine, such collaborative work	
	is mandatory.			
	The use of cell phone	es, iPods, laptops and other	personal electronic devices	
	are prohibited from	the classroom during the cla	ass time, unless the	
	instructor makes an	explicit exception.		
	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.			
	Instructor has the right to submit work to software to identify plagiarism.			
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Course Specific Policies	It is expected that studer	nts read the material that is o	coming under discussion prior	
	-		during class sessions offering	
	insight, comment, reinforcement, argument, contrary views and underscoring			
	examples.			
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	ONLINE QUIZES			
	There are two online quizzes for the course.			
	Online Quiz 1: Health/Sa	fety Regulations and Per-Sta	art Health & Safety reviews	
	Available on Avenue	to Learn during the week of	Mon Jan 29 to Fri Feb 2	
	Online multiple-choice	ce format. Time limit to comp	plete once started.	
	·	·		
	Online Quiz 2: Ethics and	d Environmental Regulations		
		to Learn during the week of		
		ce format. Time limit to com		
	· ·	·		





ASSIGNMENTS

There are three assignments in the course.

Assignment 1: Legal Scenarios

- Assignment available via Avenue to Learn during week of Jan 15-19
- Written report style submission in MS Word or PDF format.
- Due Sunday Feb 4 via Avenue to Learn
- Note: Submissions after Mon Feb 5 at 5pm will not be accepted, due to needing to go over sample answers at the Mon Feb 5 lecture in preparation for the midterm exam being held on Mon Feb 5, 2024.

Assignment 2: Pre-Start Health and Safety Reviews

- Assignment available via Avenue to Learn during week of Jan 29 to Feb 2
- Written report style submission in MS Word or PDF format
- Due Wed Mar 13 via Avenue to Learn.

Assignment 3: Ethics Scenarios

- Assignment available via Avenue to Learn during week of Mar 4-8
- Written report style submission in MS Word or PDF format.
- Due Wed Mar 27 via Avenue to Learn

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.

Marked assignments will be returned to students at the lecture that occurs 3 full weeks after the assignment due date.

MIDTERM & FINAL EXAM

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 (i.e., a missed midterm exam will result in the cumulative final examination being weighted at 70% of the final grade).

MSAF is not permissible for weights on evaluations (i.e., midterm, final exam) 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.

Final exam is **cumulative.**

To pass the course, students must pass both the assignments portion and achieve accumulated passing grade on the midterm and final exam.





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3. COURSE SCHEDULE		
W01: Mon Jan 8	Course Introduction Engineering Law #1 Why Laws Exist Canadian Legal System Legal Entities – Persons & Corporations Law of Torts Limitations Act Introduction to Contracts Five Aspects of a Contract in Canada	READINGS: Lecture Notes READINGS: 4 th Marston CH 1-7 READINGS: 5 th Marston CH 1-7
W02: Mon Jan 15	 Engineering Law #2 Review of Contracts Problems with Contracts Purchasing Products and Services Tendering and Contract A & B Contract Interpretation Discharge of Contracts Breach & Fundamental Breach Solving Contract Problems 	READINGS: Lecture Notes READINGS: 4 th Marston CH 8-20 READINGS: 5 th Marston CH 8-20 ASSIGN #1: Legal Scenarios available on A2L during this week Note: Tues Jan 16 is the last day to add or change classes.
W03: Mon Jan 22	 Guest Speaker Workplace Health and Safety Pre-Start Health & Safety Reviews (PSR) 	READINGS: Lecture Notes READINGS: 4 th Marston CH 28-31 READINGS: 5 th Marston CH 28-31 FURTHER READINGS: Ontario Occupational Health and Safety Act O.Reg. 213 Construction PRojects O.Reg. 851 Industrial Establishments O.Reg. 490 Designated Substances





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W04: Mon Jan 29	 Engineering Law #3 How a Client Hires an Engineer Concurrent Liability Construction Contracts & Projects Bonds and Performance Guarantees Construction Lien Act Construction Contract Administration CA Workflows and Terms Change Orders Introduction to CCDC Contracts Other Standard Form Contracts Ont. Professional Engineers Act Professional Responsibilities 	READINGS: Lecture Notes READINGS: 4 th Marston CH 21- 27,30 READINGS: 5 th Marston CH 21-27, 30 ASSIGN #1: Legal Scenarios Due: Sunday, Feb 4 @ 11:59pm (A2L) Note: For ASSIGN #1, late submissions after Mon Feb 5 at 5pm will not be accepted, as sample answers are being provided at the Mon Feb 5 lecture.
W05: Mon Feb 5	Review Assignment 1 Sample Answers Health & Safety Review Protecting yourself as an Engineer Ontario Regulations Designing for Better Safety Decision Making & Risk Assessment Enforcement & Ministry of Labour Ontario definition of "Constructor" When something goes wrong Engineering Law #4 Why you don't want to go to court! Arbitration and Mediation How to Protect Yourself as an Engineer Knowing when you need a lawyer Professional Practice Insurance Ontario Human Rights Code Ontario Employment Standards Act Review for Midterm Take up Assignment 1 Sample Answers Engineering Law Concepts Review	READINGS: Lecture Notes Ontario Occupational Health and Safety Act O.Reg. 213 – Construction Safety O.Reg. 851 – Industrial Establishments ASSIGN #1: Legal Scenarios - sample answers posted Mon Feb 5 ONLINE QUIZ #1: Health & Safety Regulations & PSRs available Mon June 5 to Fri Jun 9 ASSIGN #2: Pre-Start Health and Safety Review Report available on A2L during this week
W06: Mon Feb 12	Online Midterm Exam 7:00-9:30pm Focus on Engineering Law, plus Workplace Health & Safety	Online midterm to be provided via A2L. Written instructions and link will be provided.
W07: Mon Feb 19	No Class – Family Day (Stat Holiday)	Note: McMaster Reading Week is Feb 19-23 (no classes)





W08: Mon Feb 26	Role of the Engineer & Path to Licensure What Engineers Do History of Engineering Licensing & Why Licensing and path to licensure Legal Definition of an Engineer Why "Engineer" is a protected title in Canada and legal reasons why Certificate of Authorization Regulations and Self-Governance Engineers vs. Architects vs. Others Engineering Seal Discipline and Enforcement Professional Duties and Responsibilities Engineer's Duty to Report Consulting Engineers	READINGS: Lecture Notes READINGS: 4 th Marston CH 32 READINGS: 5 th Marston CH 32 READINGS: 5 th Andrews CH 1-5, 9
W09: Mon Mar 4	Ethics #1 Principles of Ethics and Justice Ethical Theories Employee Engineer Design Engineer Project Engineer Consulting Engineer Professional Engineers Act & O.Reg 941 Code of Ethics Code of Conduct Sample Ethics/Conduct Questions	READINGS: Lecture Notes READINGS: 4 th Marston CH 32 READINGS: 5 th Marston CH 32 READINGS: 5 th Andrews CH 1-5, 9 ASSIGN #3: Ethics Scenarios available on A2L during this week
W10: Mon Mar 11	 Ethics and Professional Conduct #2 Sample Ethics/Conduct Questions Common Dilemmas in the Workplace Client-Consultant Relationship Professional Competence Reviewing Work of Others Conflict of Interest Drawings and Seals Environmental Ethics Maintaining your License / Competency 	READINGS: 5 th Andrews CH 10-13 and Lecture Notes ASSIGN #2: PSR Report Due: Wed Mar 13 @ 11:59pm (A2L) Note: Fri Mar 15 is the last day to drop the course without penalty – see McMaster Academic Calendar





W11: Mon Mar 18	Review Assignment 2 Sample Answers Environmental Regulations Canadian Regulations Ontario Regulations Municipal Regulations Permits, Assessments, and Reporting Impact on Engineering Projects How to Stay out of Trouble!	READINGS: 5 th Andrews CH 13-15 and Lecture Notes ONLINE QUIZ #2: Ethics and Environmental regulations available Mon Mar 18 to Fri Mar 22
W12: Mon Mar 25	 Ontario Design Codes, Statutes & Reg's Regulations vs. Codes vs. Standards Industry Consensus Standards & Codes Technical Reports & RP documents Government Regulations Global vs. Federal vs. Provincial Codes Building Code Fire Code Plumbing Code Ontario Electrical Safety Code ASME B31.1 Other Codes & Standards Technical Safety & Standards Authority Electrical Safety Authority Enforcement of Codes/Regulations Technical Societies (Role of) Standards Council of Canada (Role of) Permits Guidance for the Engineer 	ASSIGN #3: Ethics Scenarios Due: Wed Mar 27 @ 11:59pm (A2L)





	Review Assignment 3 Sample Answers	All Lecture Notes Marston book
W13: Mon April 1	 Ethics & Professional Conduct Review Review Assignment 3 Sample Answers Review of Ethics & Conduct Concepts Professional Practice Guidance Best Practices to avoid design mistakes Learning from the mistakes of others Navigating Various Codes/Regulations QA/QC for Engineering Design QA/QC during Construction Projects Common Problems in Construction Review for writing the PPE Exam Keeping your skills up to date Course Review Review of all course material Advice for Staying out of Trouble Techniques for resolving problems 	Marston book The notes you took while taking this course!
W14: Mon Apr 8	 When to get help with Ethics/Law issue How to protect yourself and your team No Class – this is not a full week	Official "Last Day" of classes is Wed
W14. WON Apr 6		
Final Exam	Online Final Exam 7:00-9:30pm	Online exam to be provided via
Most likely will be Mon Apr 15 at 7:00-10:00pm	Covers Entire Course	A2L. Instructions and link will be provided. Official date will be announced on A2L once the final exam schedule is "finalized" by McMaster.

Classes end: Wed, Apr 10, 2024

Exams will take place during the final examination period of Fri Apr 12 to Thurs Apr 25.

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 **see above for dates**

Weight

The course is taught using two different marking schemes:

GENTECH 4EM3 (Graded version)

- Students will be assigned a percentage grade based on below.
- A pass is defined as a course mark of at least 50%.
- Students must pass BOTH the final exam and the Assignments portions of the course to pass the course.
- If a student does not complete a course component (Quiz or Assignment) without using the MSAF process, they will receive a mark of zero for that individual component.

SFGNTECH 4EM3 (Pass/Fail Version)

- Students will be assigned a "Pass" if their percentage grade of at least 50% AND:
- Students must pass BOTH the final exam and the Assignments portions of the course to pass the course.
- Students MUST complete all components of the course (Quizes, Assignments, Midterm Exam, and Final Exam) in order to pass the course.
- If a student misses a component, they must complete MSAF and contact the instructor as soon as possible to see if any accommodations can be made. Accommodations will be the discretion of the instructor.

Percentage Grade Breakdown:

Assignments (3 at 10% each)	30%
Online Quizzes (2 x 5% each)	10%
Mid-term Test (Engineering Law and Health and Safety) – Online Format	30%
Final examination (tests cumulative knowledge) – Online format	30%
TOTAL	100%

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

ACADEMIC INTEGRITY

You are expected to exhibit honesty and use ethical behaviour in all aspects of the learning process. Academic credentials you earn are rooted in principles of honesty and academic integrity. It is your responsibility to understand what constitutes academic dishonesty.

Academic dishonesty is to knowingly act or fail to act in a way that results in 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. For information on the various types of academic dishonesty please refer to the Academic Integrity Policy, located at https://secretariat.mcmaster.ca/university-policies-procedures-guidelines/

The following illustrates only three forms of academic dishonesty:

- plagiarism, e.g. the submission of work that is not one's own or for which other credit has been obtained.
- improper collaboration in group work.
- copying or using unauthorized aids in tests and examinations.

AUTHENTICITY / PLAGIARISM DETECTION

Some courses may use a web-based service (Turnitin.com) to reveal authenticity and ownership of student submitted work. For courses using such software, students will be expected to submit their work electronically either directly to Turnitin.com or via an online learning platform (e.g. A2L, etc.) using plagiarism detection (a service supported by Turnitin.com) so it can be checked for academic dishonesty.

Students who do not wish their work to be submitted through the plagiarism detection software must inform the Instructor before the assignment is due. No penalty will be assigned to a student who does not submit work to the plagiarism detection software. All submitted work is subject to normal verification that standards of academic integrity have been upheld (e.g., on-line search, other software, etc.). For more details about McMaster's use of Turnitin.com please go to www.mcmaster.ca/academicintegrity.

ONLINE PROCTORING

Some courses may use on-line elements (e.g., e-mail, Avenue to Learn (A2L), LearnLink, web pages, capa, Moodle, ThinkingCap, etc.). Students should be aware that, when they access the electronic components of a course using these elements, private information such as first and last names, user names for the McMaster e-mail accounts, and program affiliation may become apparent to all other students in the same course. The available information is dependent on the technology used. Continuation in a course that uses on-line elements will be deemed consent to this disclosure. If you have any questions or concerns about such disclosure please discuss this with the course instructor.

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.

CONDUCT EXPECTATIONS

As a McMaster student, you have the right to experience, and the responsibility to demonstrate, respectful and dignified interactions within all of our living, learning and working communities. These expectations are described in the Code of Student Rights & Responsibilities (the "Code"). All students share the responsibility of maintaining a positive environment for the academic and personal growth of all McMaster community members, whether in person or online.

It is essential that students be mindful of their interactions online, as the Code remains in effect in virtual learning environments. The Code applies to any interactions that adversely affect, disrupt, or interfere with reasonable participation in University activities. Student disruptions or behaviours that interfere with university functions on online platforms (e.g., use of Avenue 2 Learn, WebEx or Zoom for delivery), will be taken very seriously and will be investigated. Outcomes may include restriction or removal of the involved students' access to these platforms.

ACADEMIC ACCOMMODATION OF STUDENTS WITH DISABILITIES

Students with disabilities who require academic accommodation must contact Student Accessibility Services (SAS) at 905-525-9140 ext. 28652 or sas@mcmaster.ca to make arrangements with a Program Coordinator. For further information, consult McMaster University's Academic Accommodation of Students with Disabilities policy.

REQUESTS FOR RELIEF FOR MISSED ACADEMIC TERM WORK

McMaster Student Absence Form (MSAF): In the event of an absence for medical or other reasons, students should review and follow the Academic Regulation in the Undergraduate Calendar "Requests for Relief for Missed Academic Term Work".

ACADEMIC ACCOMMODATION FOR RELIGIOUS, INDIGENOUS OR SPIRITUAL OBSERVANCES (RISO)

Students requiring academic accommodation based on religious, indigenous or spiritual observances should follow the procedures set out in the RISO policy. Students should submit their request to their Faculty Office normally within 10 working days of the beginning of term in which they anticipate a need for accommodation or to the Registrar's Office prior to their examinations. Students should also contact their instructors as soon as possible to make alternative arrangements for classes, assignments, and tests. http://www.mcmaster.ca/policy/Students-AcademicStudies/Studentcode.pdf

COPYRIGHT AND RECORDING

Students are advised that lectures, demonstrations, performances, and any other course material provided by an instructor include copyright protected works. The Copyright Act and copyright law protect every original literary, dramatic, musical and artistic work, including lectures by University instructors

The recording of lectures, tutorials, or other methods of instruction may occur during a course. Recording may be done by either the instructor for the purpose of authorized distribution, or by a student for the purpose of personal study. Students should be aware that their voice and/or image may be recorded by others during the class. Please speak with the instructor if this is a concern for you.





EXTREME CIRCUMSTANCES

The University reserves the right to change the dates and deadlines for any or all courses in extreme circumstances (e.g., severe weather, labour disruptions, etc.). Changes will be communicated through regular McMaster communication channels, such as McMaster Daily News, A2L and/or McMaster email.