

Course Outline

1. COURSE INFORMATION

Session Offered	Fall 2015	
Course Name	Technology Ethics and Sustainability	
Course Code	GENTECH 4TE3	
Date(s) and Time(s) of lectures	C01: MO: 2:30-3:20pm TH: 8:30-10:20am C02: MO: 4:30-5:20pm TH: 12:30-2:20pm	C03: MO: 11:30am-1:20pm TH: 11:30am-12:20pm
Program Name	One of the following: Automotive and Vehicle Technology / Biotechnology / Process Automation Technology	
Calendar Description	The course explores the social implications and environmental impacts of technologies and the ethical challenges they impose on technology professionals.	
Instructor	Greg Zilberbrant	Email: zilberg@mcmaster.ca Office: ETB/209 Office Hours: By advance appointment only

2. COURSE SPECIFICS

Course Description	<p>This course incorporated the elements learned through General Technology business, sustainability, and ethics course elements with an application towards a real-life project. Each week will cover a broad area of sustainability including policy, sustainable design, measuring sustainability, communication in sustainability, social/ethic challenges, and emerging sustainability issues.</p> <p>The course examines all area of sustainability and, through class discussion and project application, encourages the students to consider their own actions in the position of public and private sector leaders.</p> <p>Students work as a team to address a real-life newsworthy sustainability issue of their choice. Acting as a specialized team of experts, the groups are expected to meet with client liaison representatives and present to the project client in structured business environment throughout the course.</p>		
Instruction Type	Code	Type	Hours per term
	C	Classroom instruction	39
	L	Laboratory, workshop or fieldwork	
	T	Tutorial	
	DE	Distance education	
	Total Hours		39
Resources	ISBN	Textbook Title & Edition	Author & Publisher
	None	None	None
	Other Supplies	PowerPoint slides and supporting material will be provided via electronic files on the course A2L site	

Prerequisite(s)	GEN TECH 3TS3, ENGTECH 4EE0, and registration in Level 4 of Automotive and Vehicle Technology, Biotechnology or Process Automation Technology
Corequisite(s)	None
Antirequisite(s)	None
Course Specific Policies	<p>It is expected that students read the material that is coming under discussion prior to class. All assignments submitted for evaluation are completely word processed. Presentations associated with the case project are done in PowerPoint with an accompanying handout for the audience. Students are expected to actively participate during class sessions offering insight, comment, reinforcement, argument, contrary views and underscoring examples.</p> <p>Switching Classes: You are required to attend the class days/times for the section in which you are registered. It is possible to attend another class day/time occasionally for specific conflicts that are both urgent and important in nature, such as a job interview – however you must get prior approval from the instructor.</p> <p>Weekly Quizzes (10) – worth 50% (5% each)</p> <p>Students are expected to complete all quizzes independently. All material will be provide electronically. Some course material is video based and may require a fee (i.e. rental fee) to watch. Quizzes will test material from lectures and assignment readings/videos/etc. Quizzes may test material that was covered in previous weeks throughout the course. Students are expected to keep up with material and lectures notes.</p> <p>Assignments will be due by 11:59 pm each Sunday unless otherwise directed by the instructor.</p> <p>Project Report - worth 25%</p> <p><u>Project Background:</u></p> <p>Each group is a specialized consulting firm evaluating the environmental, social, and environmental impact of changes to technology, public policy, and business practices. The Government of Ontario (or Canada – depending on jurisdiction) has hired you to conduct an investigation of an emerging high-profile issue. The Government is being pressures by citizens, NGOs, and the business community to take a stance on a specific issue as each group has a vested interest in the outcome of the associated public policy.</p> <p><u>Scope of work:</u></p> <p>Review the existing public policy including regulation, guidelines, and government positions on the topic:</p> <ol style="list-style-type: none"> 1. Review positions of existing NGOs/academia 2. Review current practices of the business community in the field 3. Review actions/positions of other jurisdictions 4. Review the existing knowledge on the technology and/or practice 5. Review the relevant media coverage and public opinion 6. Evaluate the government’s options on action (if any) as it related to public policy 7. Evaluate the metrics that are relevant and those that would be expected by stakeholders (if different) 8. Evaluate (quantify) the environmental, social, and economic impact of the processes change(s) or the impact of the do nothing approach

	<p>9. Evaluate the potential responses from stakeholders and potential media reaction</p> <p>10. Provide recommendation on next steps including (but not limited to) a policy roll-out strategy and communication strategy</p> <p>Final Report (worth 25%) is due on Sunday, December 6 at 11:59 pm with one report being submitted per group to the dropbox on A2L.</p> <p><u>Progressive Project Meetings & Presentations (5) – worth 15%</u> Each group will run three (3) meetings and deliver two (2) progressive presentations. Each engagement will be 30-40 minutes and worth 3% each for a total of 15% of your final mark. Specific expectation for each meeting and presentation will be outlined in the project description document available on A2L. All members earn the same as the group grade.</p> <p><u>Final Presentation – worth 10%</u> A group presentation using PowerPoint is also required. Presentations will be delivered during class times in weeks 10 through 12. All group members must participate in the presentation. Each group will have 45 minutes. All members earn the same as the group grade.</p> <p>Late submissions will receive an immediate 10% deduction from the assignment mark; plus a further 10% late penalty per day will be applied and deducted from the assignment mark. Assignments that have not been submitted within three (3) days after the due date will not be graded and will receive a mark of ZERO.</p>	
Departmental Policies	<ul style="list-style-type: none"> • Students must maintain a GPA of 3.5/12 to continue in the program. • 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. • Where group work is indicated in the course outline, such collaborative work is mandatory. • 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. • 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. 	
3. SUB TOPIC(S)		
Week 1: Sep 8-13	<p>Course Introduction</p> <ul style="list-style-type: none"> • assignment format • project description and deliverables • presentation/meeting details and deliverables 	
Week 2: Sep 14-20	<p>The role of corporate and industry-wide policy in the sustainability movement</p> <ul style="list-style-type: none"> • how public policy can (and has) influenced environmental, economic, and social aspects of sustainability • specific examples of public policy and political influences 	Team selection

Week 3: Sep 21-27	The role of corporate and industry-wide policy in the sustainability movement <ul style="list-style-type: none"> • policies outside the public arena • how private policy can (and has) been implemented • specific examples of industry-wide initiatives such as ISO, FSC, and LEED • Leaders vs laggards 	First week of TA project meetings (Project Idea)
Week 4: Sep 28-Oct 4	History or sustainable design and applicable knowledge for today's professionals <ul style="list-style-type: none"> • evolution of sustainability design primary addressing environmental concerns • onset of the environmental movement progressing to the concepts of environmental protection (P2) through to design for the environment • 	First week of presentations (Project Rationale)
Week 5: Oct 5-11	Environmental and economic approach, tools and policy instruments, of sustainable design <ul style="list-style-type: none"> • environmental and economic approaches associated with sustainability • specific attributes of environmental approaches and examples • specific attributes of economic approaches and examples 	
<i>Mid-term recess (Monday, October 12 to Saturday, October 17)</i>		
Week 6: Oct 19-25	A review of available information, tools, and methodologies of information gathering in a sustainability context <ul style="list-style-type: none"> • public access to knowledge by highlighting the specific tools used (eg. NPRI, GHG, Access Environment, Open Government, Statistics Canada, audited corporate filings and corporate sustainability report) • detailed overview of how these tools can be used by any members of the public as well as the limitations of each tool • focus will be placed on self-reporting and the dangers of greenwashing 	First week of TA project meetings (Project Review)
Week 7: Oct 26-Nov 1	Impact of public and media opinion in a technical advanced arena <ul style="list-style-type: none"> • interaction of technical and non-technical experts in the sustainability arena • highlight the role of technical experts (public, private, academic, and NGO) and the forums in which they must be ready to participate • regulatory integration of public consultation in the environmental assessment process, approvals and operations • impact of public opinion and media 	First week of presentations (Connection to policy/design)

Week 8: Nov 2-8	<p>The challenges of measuring sustainability. How to balance the environmental, social, and economic needs in valuation</p> <ul style="list-style-type: none"> the challenges in measuring sustainability commonly accepted measurement tools contrasting priorities between social welfare, environmental protection, and economic prosperity specific examples of tools from Environmental Assessment to Social Impact Assessment 	
Week 9: Nov 9-15	<p>Tools and application of measured sustainability</p> <ul style="list-style-type: none"> specific regional examples such as: McMaster Sustainability Report; Code Red Hamilton health study; and product LCAs focus will be placed not only on the data but the format, language, and media in which it is communicated 	First week of TA project meetings (Evaluation)
Week 10: Nov 16-22	<p>What is it all for? Social impact as a measure of environmental and economic sustainability.</p> <ul style="list-style-type: none"> emergence of social aspects of sustainability as an overriding theme of environmental and economic objectives community engagement social enterprise 	First week of Final Presentations
Week 11: Nov 23-29	<p>Review the environmental, economic, and social impact of an emerging sustainability issue. <i>The lecture will focus on a major emerging sustainability issue that are topical at the time of the course.</i></p>	
Week 12: Nov 30-Dec 6	<p>Review the environmental, economic, and social impact of an emerging sustainability issue. <i>The lecture will focus on a major emerging sustainability issue that are topical at the time of the course.</i></p>	Final Project Report due
Week 13: Dec 7-8	<p>Review the environmental, economic, and social impact of an emerging sustainability issue. <i>The lecture will focus on a major emerging sustainability issue that are topical at the time of the course.</i></p>	
<p>Classes end – Tuesday December 8, 2015 Final examination period: Wednesday December, 9, 2015 to Tuesday, December 22, 2015 All examinations MUST BE written during the scheduled examination period.</p>		
<p>Note that this structure represents a plan and is subject to adjustment term by term.</p> <p>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.</p>		
4. ASSESSMENT OF LEARNING *including dates*		Weight
Quizzes (10)		50%
Group Project Report		25%
Progressive Project Meetings & Presentations (5)		15%
Final Project Presentations (1)		10%
TOTAL		100%
Percentage grades will be converted to letter grades and grade points per the University calendar.		

5. LEARNING OUTCOMES

1. Distinguishes major current and emerging sustainability issues from a technological context
2. Demonstrate an understanding of the interconnection of ethics, public policy, and engineering
3. Demonstrate a “system thinking” approach to sustainability management that goes beyond the technical aspects of the problem that includes economic, social, political, environmental, cultural, and ethical impact.
4. Demonstrate the ability to communicate (written & oral) sustainability issues in technical and non-technical environments.
5. Demonstrate the ability to manage and successfully participate in a dynamic team project environment
6. Implement a real-life sustainability project using a systematic approach that is tailored to the specifics of the situation; create recommendations and an action plan that follows from the analysis.

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/Anti-Discrimination%20policy.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 a self-reporting tool for **Undergraduate Students** to report absences that last up to 3 days and provides the ability to request accommodation for any missed academic work. Please note, this tool cannot be used during any final examination period.

You may submit a maximum of 1 Academic Work Missed requests per term. It is YOUR responsibility to follow up with your Instructor immediately regarding the nature of the accommodation.

If you are absent more than 3 days or exceed 1 request per term you **MUST** visit your Associate Dean's Office (Faculty Office). You may be required to provide supporting documentation.

This form should be filled out immediately when you are about to return to class after your absence. <http://www.mcmaster.ca/msaf/>

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.

Turnitin (Optional)

This course will be using a web-based service (Turnitin.com) to reveal plagiarism. Students submit their assignment/work electronically to Turnitin.com where it is checked against the internet, published works and Turnitin's database for similar or identical work. If Turnitin finds similar or identical work that has not been properly cited, a report is sent to the instructor showing the student's work and the original source. The instructor reviews what Turnitin has found and then determines if he/she thinks there is a problem with the work. Students who do not wish to submit their work to Turnitin.com must still submit a copy to the instructor. No penalty will be assigned to a student who does not submit work to Turnitin.com. All submitted work is subject to normal verification that standards of academic integrity have been upheld (e.g., on-line search, etc.). To see the Turnitin.com Policy, please go to <http://www.mcmaster.ca/academicintegrity/turnitin/students/>

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/fippa/fippa.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. 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>