

**SEP 705**  
**GREEN ENGINEERING, SUSTAINABILITY AND PUBLIC POLICY**

**Fall 2023**  
**Every Thursday – 5:30 to 8:30 PM EST**  
**Location: ETB 535**

**Instructor:** Velma I Grover

**Email:** grovev1@mcmaster.ca OR [velmaigrover@yahoo.com](mailto:velmaigrover@yahoo.com) (preferred)

**Phone number** 905 515 4467

**Office Hours:** There are no fixed office hours, please, do send me an email to set up either a telephone appointment or a zoom meeting.

**Description:** Green engineering theory and guiding principles; sustainability at the regional and neighbourhood levels; transportation and land-use interactions and energy options through an exercise for city planning; new urbanism design; building design to minimize energy, water and material resources; green manufacturing and product design; sustainability indicators.

**Objectives:** This course will introduce the concepts of green engineering and how to help businesses and companies become green including site visit to a “green company”; green buildings and green materials. There is also a focus on how to build sustainable cities and communities and role of technology and policies to achieve it.

**Weekly Course Schedule**

Class no	Date	Topic
1	14-Sep	Introduction to the course and screening of "Next Industrial Revolution"
2	21-Sep	Making a business case for companies to go green
3	28-Sep	Nature based solutions for climate resilient development
4	05-Oct	Redevelopment of a nation after disaster/war and how to estimate budget for the same
5	12-Oct	Sustainable Transportation
6	19-Oct	Green buildings including net zero buildings
7	26-Oct	The World's Future: Sustainable Development Goals, long term planning for a country and how budget influences green options (computer simulation)
8	02-Nov	Energy Management - Veriform AND Energy planning for cities
9	09-Nov	Green Materials
10	16-Nov	Climate change mitigation/adaptation + role of various levels of Govt in Canada for the same
11	23-Nov	Circular Economy and sustainable initiatives at HP
12	30-Nov	Net Zero: Canada Post + how do you monitor and report sustainability progress
13	07-Dec	Last Words and Student Presentations

## ASSIGNMENTS:

**Assignment 1:** Sustainability Management Simulation: Net Zero. In this assignment you will play the role of the General Manager of a 500-room, 4-star city-center hotel with the goal of reaching net zero greenhouse gas emissions by 2050. After doing the simulation exercise, please describe the critical takeaways from the exercise. Link to the game will be provided on Avenue to Learn. Due Date: September 28, 2023 (10%).

**Assignment 2:** Write a memo to the board of construction company you work with (imaginary company) on why your company should go with green technologies (green buildings)? Maximum length 2 pages (Arial font size 12). Submission date: Oct 26<sup>th</sup> 2023. (Based on lecture 2 and 6) (10%)

**Assignment 3:** Learning how to include SDGs and greener technologies through simulation exercise. Simulation Exercise will be done in class. The assignment is a reflection of the exercise in class, and should include

- Learning Experience of using simulation exercise
- Thoughts on how short term policy/plan impacts long term plans
- Budget VS green options

Submission date: Nov 2<sup>nd</sup> 2023 (Based on class 7) (10%)

**Assignment 4: Group Assignment (or individual, if making a group is not possible).** Case study for the assignment will be uploaded on Avenue to Learn. You will have to answer questions based on the case study provided. Submission date: Nov 9, 2023 (10%)

**Assignment 5: Group Assignment (or individual, if making a group is not possible).** Case study based on “sustainability and circular economy” will be uploaded on Avenue to Learn. You will have to answer questions based on the case study provided. Submission date: Nov 30, 2023 (10%)

**Assignment 6: Group Assignment.** The final assignment is a major paper, in groups you are expected to work on the following theme: a country has just come out of war, national infrastructure is destroyed, and you are given a task of rebuilding the nation. What kind of policies would you recommend to the Government, which technologies will you (as green engineers) recommend for rebuilding basic infrastructure (ex. Roads, railways) and what materials will you use, the same considerations will apply to buildings, water supply etc. Remember this is a developing country – just out of war, think about priorities.

The groups will be divided based on themes: infrastructure, energy, industries etc. This will be discussed in the third and fourth lecture. The format for assignment will be discussed in the class but each group must have the components listed below.

The assignment has 40% marks and will be graded based on

- Green engineering technologies recommended (10%)
- Policies recommended (10%)

- Overall application of class lectures, specially, as they relate to transferability to the third world and what factors were taken into consideration for a war torn, poverty ridden third world country. (5%)
- Innovative approach used (5%)
- Class presentation (10%)

Submission date: Dec 7<sup>th</sup> 2023

**Class Participation (10%):** For class participation, please, submit two key lessons from each lecture:

- When you did attend lecture, what did you learn from each speaker – two key lessons

### Policy Reminders:

Please read the following carefully:

### MASKS ARE STRONGLY ENCOURAGED ON CAMPUS

Wearing a mask in our shared classroom space is a good way to keep yourself and others healthy throughout the term in the face of COVID-19, but also other airborne illnesses. Staying healthy, so that you can attend classes in-person, study, complete course work, and collaborate with your peers, is an important part of your academic success this year. Wearing a mask in the classroom also provides increased protection to other students and TAs who may have elevated needs in their own health or that of their families. I encourage you to bring and wear a mask in class, labs, studios, seminars, and any crowded spaces. I have chosen to wear a mask in the classroom and encourage others to do the same. Free surgical-level masks are available at several locations, including the Campus Store.

#### 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 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 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: 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](http://www.mcmaster.ca/academicintegrity).

### **COURSE MODIFICATIONS**

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

The instructor and 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. It is the responsibility of the student to check his/her McMaster email and course websites weekly during the term and to note any changes.

### **COURSES WITH AN ON-LINE ELEMENT**

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.

### **ONLINE PROCTORING**

Some courses may use online proctoring software for tests and exams. This software may require students to turn on their video camera, present identification, monitor and record their computer activities, and/or lock/restrict their browser or other applications/software during tests or exams. This software may be required to be installed before the test/exam begins.

### **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](mailto: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”.

Students may request relief for missed work in two ways using the McMaster Student Absence Form (MSAF), Type A and Type B. In both cases, an email notification is sent to the instructor (or designate), students must follow-up with the instructor promptly after the absence (by email, Avenue to Learn, or other communication pathway indicated by the instructor for the course) for the relief to be provided, and while instructors are expected to provide relief, instructors determine the relief that is appropriate for the work and the course.

Type A MSAF is used directly by students through the Mosaic reporting tool for assignments worth <25% and for absences lasting 3 days or fewer. The Type A pathway can only be used once, whether for a first request or subsequent to another Type B request. No documentation is required.

Type B MSAF requires that the student meet with an academic advisor to complete the MSAF request through the Mosaic reporting tool. Type B is used for assignments worth 25% or more and for absences lasting more than three days. Type B will also be used if this is the second or subsequent reported absence. This pathway provides for students missing a significant amount of work to benefit from advising as students are required to seek advice before a Type B MSAF is submitted. No documentation is required for the fall 202 term and the role of the academic advisor is not to approve the request, but to advise the student on the potential impact on their academic success.

### **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.