COURSE INFORMATION

Course Name: INTEGRATED CAPSTONE DESIGN COURSE　　　　Course Code: **CE 4X06**
Session Offered: Fall 2022 & Winter 2023
Calendar Description: Capstone project supervised by faculty members in civil engineering, involving design and synthesis that reinforces concepts from structural and/or municipal engineering. Exposure to elements of teamwork, sustainability, social responsibility, and project management.

Fall Instructor(s):	Email	Extension	Office	Office Hours/Contact:
Dr. Samir E. Chidiac	chidiac@mcmaster.ca	27768	JHE A414	Mon/Thur 5:30PM - 6:20PM
Dr. Yiping Guo	guoy@mcmaster.ca	24846	JHE 226	Mon/Wed 5:30PM -6:20PM

Lecture Schedule Day(s):	Monday & Wednesday	Time:	4:30 PM – 5:20 PM	MDCL 1110
	Thursday	Time:	4:30 PM - 5:20 PM	MDCL 1110
Laboratory Schedule Day(s):	Monday & Wednesday	Time:	2:30 PM – 3:20 PM	CNH 103

Winter Instructor(s):	Email	Extension	Office	Office Hours/Contact:
Dr. Peijun Guo	guop@mcmaster.ca	27903	JHE 227	TBD
Cameron Churchill	church@mcmaster.ca	23179	JHE 316/C	TBD

Lecture Schedule Day(s):	Monday & Wednesday	Time:	4:30 PM – 5:20 PM	MDCL 1110
	Thursday	Time:	4:30 PM - 5:20 PM	MDCL 1110
Laboratory Schedule Day(s):	Monday & Wednesday	Time:	2:30 PM – 3:20 PM	PGCLL M16

1. COURSE OBJECTIVES

This course will focus upon the maturing area of sustainability, with an emphasis on how sustainability relates to civil engineering and the sub-disciplines of civil engineering. This course is the integrated capstone design course for students in civil engineering, and places considerable emphasis on the fundamentals of design that minimize environmental impact and maximize the resiliency and vibrancy of built communities and their built infrastructure. The course project will focus on a real-world design application from a broad sustainability perspective, where several civil engineering and related sub-disciplines come into play.

2. COURSE SPECIFIC POLICIES

Student self-reflection

Every student is required to submit a self-reflection report on the last Friday of September 2022 and January 2023. For information, students are strongly encouraged to read the "Engineering Reflection Guidebook" that was prepared by the McMaster University faculty of Engineering. The guide which is available at https://ecampusontario.pressbooks.pub/engineeringreflectiontoolkit/, includes one module for training students on writing a reflection based on the "What? So what? Now what?" model, and another module to guide instructional teams with evaluating and providing feedback on a reflection essay.

Individual and Group Marks

In order to ascertain that each member of a group is contributing positively to the project, the chapter hand-ins and final report will largely be individually marked. In the proposal each team must identify what chapters their group members are responsible for, noting that any number of group members may be assigned to each technical chapter, and the submission dates. Each chapter requires one technical lead and one reviewer who are responsible for the chapter and will receive twice the weighting as group members who contribute to the chapter but are not the lead. The members assigned to each chapter will receive the same mark for that chapter. The chapters will have two marks, the first mark is 7 for technical content and the second is 3 for presentation and writing quality to a total of 10. For the final report, of the 40%, 10% of the grade will be a group mark which reflects the overall quality of the report and 30% will be individual marks based upon the chapters that each student is responsible for. During the course, groups may resubmit up to 25% of the total number of chapters for

re-marking, however the entire group must agree that a chapter can be resubmitted. Chapters resubmitted for evaluation and those included in the final report must include a Response to Instructions Comments section after each chapter that clearly notes the comments/suggestions/corrections of the TA/Faculty and how they are addressed in the revised chapter. The Chapter submission date can be revised up to 2 days before submission.

Chapter Due Dates
Chapters are to be submitted on Mondays and there will generally be a one-week turnaround for marking and feedback. The last day to submit chapters for grading and feedback is Monday November 28th, 2022, for the Fall term, and Monday February 27th, 2023, for the Winter term. The final report is due by noon on March 13, 2023.

Groups
All students will form self-selected groups of 5-6 people. Proposals are due on the 23rd of September and meetings for each group will be set to take place between the groups and the instructors/starting on the 26th of September. All groups are to be formed by September 12th, anybody not in a group will be assigned to one. If a student has not contacted their group by September 23rd, 2022, he/she will be required to withdraw from this course.

Progress Reports and Chapter Completion
Every group is required to submit a progress report on the last Friday of the month indicating the progress status of their project by noting the percent completion of each chapter. It is required that all groups have no less than 40% of the total number of chapters completed by the end of the Fall term. If 40% of the chapters have not been submitted there will be a penalty on the final report which is 4% of the 40% assessment weight of the report (it is equivalent to 10 marks deducted from a report marked out of 100).

Submissions
All the submissions are to be done electronically through A2L.

3. SCHEDULE		
WEEK 1	Introduction	Form groups
WEEK 2-13	Optimization Sustainability Structural Information Transfer Municipal Information Transfer Geotechnical Information Transfer Building Science Information Transfer Pavement Information Transfer	Project proposal Self reflection reports Project Report Chapters Mini Presentations Peer evaluations

4. ASSESSMENT OF LEARNING	WEIGHT %
Self reflection (2 reports)	5%
Confidential peer evaluation (2 evaluations)	5%
Proposal (report and meeting)	5%
Chapter Hand-ins / Interim presentations/Survey completion	35% (individual)
Final poster presentation	5%
Final project Video	5%
Final Design Project Report	40%
Late projects (Final project report) will be subject to a 10% per day penalty.	

5. LEARNING OUTCOMES

Upon completion of the course, students will be able to:

1) Understand how to apply their undergraduate knowledge to a contemporary design.

2) Design an engineering solution to a challenging contemporary problem, within realistic constraints and utilizing appropriate standards.

3) Use project management and teamwork skills to deliver a solution within time constraints.

4) Deliver a professional presentation appropriate to a broad audience.

5) Demonstrate effective written technical communication skills through final project reports.

6. 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.

7. POLICIES

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:
- 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.

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.

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".

The McMaster Student Absence Form is a self-reporting tool for **Undergraduate Students** to report absences that last up to 5 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 5 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.

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 <u>or</u> 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.

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.

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 the posting of grades must be done in a manner that ensures confidentiality – see http://www.mcmaster.ca/univsec/fippa/fippa.cfm.

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.
https://www.mcmaster.ca/policy/General/HR/Discrimination_and_Harassment.pdf

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.

8. MCMASTER GRADING SCALE

Grade	Equivalent Grade Point	Equivalent Percentages
A+	12	90-100
A	11	85-89
A-	10	80-84
B+	9	77-79
B	8	73-76
B-	7	70-72
C+	6	67-69
C	5	63-66
C-	4	60-62
D+	3	57-59
D	2	53-56
D-	1	50-52
F	0	0-49

COURSE OUTLINE