

Course Outline

1. COURSE INFORMATION

Session Offered	Fall 2023
Course Name	Municipal and Environmental Engineering
Course Code	CIVTECH 4WT3
Date(s) and Time(s) of lectures	Thursday 18:30 – 21:30
Program Name	Civil Engineering Infrastructure Technology
Calendar Description	Hydrologic Cycle and Natural Water Sources, Water Budget, Groundwater, Surface Water; Alternative Sources of Water Supply; Water Use Trends and Forecasting; Conveying and Distributing Water, Water Distribution Systems, Hydraulic Considerations, Pressure Considerations, Pumping; Wastewater Collection and Stormwater Engineering, Design of Sanitary Sewers, Stormwater Management; Water Quality, Microbiological Quality, Chemical Quality of Drinking Water, Quality Criteria for Surface Waters; Systems for Treating Wastewater and Water; Physical Treatment Processes, Screening Devices, Mixing and Flocculation, Sedimentation; Chemical Treatment Processes, Chemical Considerations, Reactions in Continuous-Flow Systems — Ideal and Real Reactors; Biological Treatment Processes, Biological Considerations, Characteristics of Wastewater, Trickling (Biological) Filters
Instructor(s)	Dr. Zobia Jawed (Ph.D., M.Eng., MBA) E-Mail: jawedz@mcmaster.ca

2. COURSE SPECIFICS

Instruction Type	Code	Type	Hours per term
	C	Classroom instruction	36
L	Laboratory, workshop or fieldwork	---	
T	Tutorial	---	
DE	Distance education	---	
Total Hours			36
Resources	ISBN	Textbook Title & Edition	Author & Publisher
	013-233717-7	Water Supply and Pollution Control, 2009	Warren Viessman Jr., Mark J. Hammer Sr.; Pearson
	0-13-283321-2	Water-Resources Engineering, 3rd Edition, 2013	David A. Chin; Pearson
Students MUST also be able to download and install EPANET software on their machines or have access to the software as it will be used during the semester and in assignments/exams. (https://www.epa.gov/water-research/epanet)			
Other Supplies		Source	
		<ul style="list-style-type: none"> Reference material to be provided as necessary on Avenue2Learn 	
Prerequisite(s)	Registration in Civil Engineering Infrastructure Technology, Fluid Mechanics - CIVTECH 3FM3		
Corequisite(s)	N/A		

Antirequisite(s)	N/A
Course Specific Policies	<ul style="list-style-type: none"> - Students must pass the Final Exam to pass this course - The midterm test and final exam are closed-book - Only the use of the McMaster Standard Calculator will be allowed in the exams. - Submitted academic work must be in PDF format, in one file and NOT multiple files, except if completed in spreadsheet or word processing software. Photos (e.g. jpeg, png, tiff, etc.) of handwritten solutions WILL NOT be accepted. - Late academic work will not be accepted and will receive a grade of zero. Accommodation to missed academic work will only be given with proper McMaster Student Absence Form (MSAF) and documentations (e.g. note from a physician) submitted to your Faculty/Program office. It will be the general policy that the lowest mark you obtained for the other assignments will be assigned to your missed assignment. - Students are NOT authorized to record lectures using video, audio, or image recording devices without documented approval from the course instructor. - Email communications to the instructor MUST be sent from your McMaster University Account (not through Avenue, work, or personal email providers). Emails should be written in a professional manner, spell checked, and proof read prior to sending them.
Departmental Policies	<p>Students must maintain a GPA of 3.5/12 to continue in the program.</p> <p>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.</p> <p>Where group work is indicated in the course outline, such collaborative work is mandatory.</p> <p>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.</p> <p>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.</p> <p>Instructor has the right to submit work to software to identify plagiarism.</p>
3. SUB TOPIC(S)	
Week 1	Municipal Water and Wastewater Systems and Water Quality-Multi Barrier Approach
Week 2	Water Distribution Systems (pipes, water towers), maintenance, Case Studies (Walkerton etc.)
Week 3	Hydraulics, Hydrology, and Water Processing, Testing (Case Study: Hamilton)
Week 4	Wastewater Flows and Characteristics (Case Studies: Chedoke Creek)
Week 5	Wastewater Collection Systems
Week 6	Mid-term Recess: Monday, October 9 to Sunday, October 15, 2023
Week 7	Mid-Term
Week 8	Wastewater Design, Processing- Biological, Chemical and Physical (Case Study: Hamilton)
Week 9	Advanced Wastewater Treatment; Great Lakes Protection, Cost/Challenges
Week 10	Water Reuse (Case Study: California), Wastewater Resource Recovery Facilities

Week 11	Sustainability, Closing the Loop (Circular Economy) and Carbon Footprint
Week 12	Student Selected Topics
Week 13	Student Selected Topics

Midterm Recess: Monday, October 10 to Sunday, October 16
 Class end date: Dec 6, 2023
 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 (5) Sept 21, Oct 12; Nov 2; Nov 23, December 6	25%
Mid-term test (Oct. 19)	20%
Final examination (Tests Cumulative Knowledge)	40%
Class discussion (Pair/Share, Individual Reflections, Discussion posts, Attendance)	15%

5. LEARNING OUTCOMES

1. Demonstrate an Understanding of water quality and municipal water/wastewater systems
2. Demonstrate an Understanding of hydraulics, hydrology, water distribution systems
3. Demonstrate an Understanding of water processing
4. Demonstrate an understanding of wastewater flows and characteristics
5. Demonstrate an Understanding of wastewater collection systems
6. Demonstrate an Understanding of wastewater processing- biological, physical, and chemical
7. Demonstrate an Understanding of water reuse and wastewater resource recovery facilities
8. Demonstrate an Understanding of sustainability and carbon footprint

6. COURSE OUTLINE – APPROVED ADVISORY STATEMENTS

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 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.

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 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.