



CIV E 728 Water and Wastewater Treatment

Winter 2027 - January 04 to April 30

Class time:

Location:

Instructor:

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7-351 Donadeo Innovation Centre for Engineering

Course Description:

*3 (fi 6) (either term, 3-0-0) Theory, design and application of advanced or alternative processes for treatment of water and wastewater, including ozone, chlorine dioxide, ultraviolet radiation, advanced oxidation, and membranes.

Course synchronous and asynchronous content delivery schedule:

All lectures will be delivered synchronously. Lectures will not be recorded and recording will not be permitted except with explicit written permission from the instructor. Lecture notes and solutions to problems solved in class will be provided through Canvas

Land Acknowledgment:

The University of Alberta acknowledges that we are located on Treaty 6 territory, and respects the histories, languages, and cultures of First Nations, Métis, Inuit, and all First Peoples of Canada, whose presence continues to enrich our vibrant community.

Course Objectives & General Content:

Through this course, students will obtain a general knowledge of advanced water treatment processes and be able to

- Explain the advantages and disadvantages of each advanced water treatment process
- Choose appropriate water treatment processes for a given contaminated water
- Design installations involving the technologies covered in the course

Course Outline: The course is divided into seven topics:

Unit	Topic
1	Introduction
2	Chlorine and Chloramine Disinfection
3	Chlorine Dioxide Disinfection
4	Ozone Disinfection
5	Ultraviolet (UV) Disinfection
6	Advanced Oxidation Processes (AOPs)
7	Advanced Membrane Technologies
-	Term Paper Presentations

Marking Scheme:

Activity	Weight
Assignments	30%
Term Project	30%
Final Exam	40%

Term Work

All term work solutions will be posted no later than the last day of classes. All term work will be returned to students by the final day of classes, with the exception of major term work due in the last week of classes. The latter will be returned by the day of the final examination or the last day of the examination period if there is no final examination in the course as per university policy; instructors will make accommodations to return these term work. It is the responsibility of the student to pick up all their term work at the specified time and place. Any unreturned term work, shall be retained and then shredded six months after the deadline for reappraisal and grade appeals. Final examinations will be kept for one year as required by university guidelines and the Government of Alberta's Freedom of Information and Protection of Privacy Act.

Calculator Policy

Only approved non-programmable calculators are permitted in examinations. Any calculator taken into an examination must have a sticker identifying it as an acceptable non-programmable calculator (gold sticker). Students can purchase calculators at the University Bookstore with the stickers already affixed. Calculators purchased elsewhere can be brought to the Student Services where the appropriate sticker will be affixed to the calculator.

Expectations for AI use

In this course, our primary focus is to cultivate an equitable, inclusive, and accessible learning community that emphasizes individual critical, creative, and affective thinking as well as disciplinary problem-solving skills. While it is reasonable to assume the use of Generative Artificial Intelligence (AI) tools might accelerate some aspects of coursework, the determination has been made to not use such tools. In order to achieve the identified course learning outcomes, students must be given learning opportunities and tasks which enable students to develop and demonstrate their skills and knowledge across course and discipline. specific projects, assignments, and assessments.

To ensure a just and consistent learning experience for all students, the use of advanced AI-tools such as ChatGPT or Dall-E 2 is strictly prohibited for all academic (written/coding/creative/etc.) work, assignments, and assessments in this course. Each student is expected to complete all tasks without substantive assistance from others, including AI-tools.

IMPORTANT: Please note that AI use is strictly prohibited in course work, assignments, and assessments. Failure to abide by this guideline may be considered an act of cheating and a violation as outlined in the [Student Academic Integrity Policy](#).