Course Syllabus

CHBE 476 2024W1 Advanced Process Engineering and Simulation

Instructor: Dr. Simcha Srebnik (she/her), simcha.srebnik@ubc.ca.

The best way to contact me is during office hours or via email. I will do my best to answer the same day (if contacted before 6pm). I tend to be less available on weekends and holidays.

Office hours: W 12-1pm, CHBE 419.

Meetings may also be requested via Zoom at:

https://ubc.zoom.us/j/66619093089?pwd=UGhLU1BrMjkyY0ZvU3BIWkpsMXdvQT09

Links to an external site.

Teaching Assistant: Mr. Muhammad Huzaifa, huzaifa9@student.ubc.ca.

Mr. Huzaifa is responsible for grading the tutorials and assignments. All grading inquiries should be first directed to the TA.

Course Description: In this course you will be introduced to Aspen/Hysys process simulation software to model chemical plants and processes. You will also learn more advanced features of Aspen Plus process simulator, including optimization, reaction kinetics, processing solids and electrolytes. Link to the relevant Calendar section: https://vancouver.calendar.ubc.ca/course-descriptions/subject/chbe

Course Topics: Solids, electrolytes, reactors, crude oil, process optimization, dynamic simulation. ~2 weeks spent on each of the topics.

Recommended Prerequisites: CHBE 345, CHBE 376

Lectures: Wednesday 11–11:50 am, Monday 2-2:50 pm, Room 314

Tutorials: Monday 3:00–4:50 pm, Room: 314

All students are expected to attend classes in-person, in accord with UBC's return to campus plan. There will not be any special accommodations for students who have been unable to travel to Vancouver in time for the start of term. Lecture recordings will not be provided. Lecture slides will be made available online on Canvas course page before each lecture. All assignments will be handed in online.

Learning Outcomes

By the end of this course, the student is expected to:

- Develop a chemical process flowsheet using Aspen Plus
- Develop a chemical process flowsheet using Aspen/Hysys
- Optimize chemical processes in Aspen Plus and Aspen/Hysys
- Create a process flowsheet for specialty chemicals and reactions
- Design a simple crude oil distillation column in Hysys
- Apply dynamic control to a process flowsheet

Required Material

This is a computer software-aided course. You are required to have access to Aspen software via the CHBE computer lab, virtual application server, or by installing on your personal computer.

Recommended Texts

- Product and Process Design Principles: Synthesis, Analysis, and Evaluation by W.D. Seider, D.R. Lewin, J.D. Seader, S. Widagdo, R. Gani, K.M. Ng, 4thEdition, Wiley, New York, 2016.
- Aspen Plus and Hysys manuals and help files

Course Assessment:

The final course grade will be based on five (~biweekly) assignments. The assignments will be given in 2-3 parts, to be worked on during tutorials (mandatory) and outside of class.
All assignments are to be worked on individually. Students may consult each other but must perform independent work.

Expected due dates: 22.9, 13.10, 3.11, 24.11, 6.12.

Piazza: https://piazza.com/ubc.ca/winterterm12024/chbe_v4761012024w1

Links to an external site.. Piazza is intended primarily for student-student Q/A.

Course Policies

Assignments must be uploaded to Canvas before the due date and time. Write-ups and simulation files must be ”zipped” and submitted as a single file to the CHBE 476 Canvas page. Late assignments will be penalized at the rate of 10 marks per day that they are overdue. Assignments are graded by the TA. If you have questions about the grading, please see the TA first, and if your issue is not resolved then contact the instructor.

When contacting instructors or teaching assistants, please include the course code in your subject heading, and include your name and student number in all communications. Please refer to this syllabus and updates on Canvas first before asking your question – the information you seek may already be published.

If in need of in-term concessions, follow this link for online reporting: https://academicservices.engineering.ubc.ca/exams-grades/academic-concession/

Academic Integrity

The academic enterprise is founded on honesty, civility, and integrity. As members of this enterprise, all students are expected to know, understand, and follow the codes of conduct regarding academic integrity. At the most basic level, this means submitting only original work done by you and acknowledging all sources of information or ideas and attributing them to others as required. This also means you should not cheat, copy, or mislead others about what is your work. Violations of academic integrity (i.e., misconduct) lead to the breakdown of the academic enterprise, and therefore serious consequences arise and harsh sanctions are imposed. For example, incidences of plagiarism or cheating may result in a mark of zero on the assignment or exam and more serious consequences may apply if the matter is referred to the President’s Advisory Committee on Student Discipline. Careful records are kept in order to monitor and prevent recurrences. For more information, visit http://www.calendar.ubc.ca/vancouver/index.cfm?tree=3,286,0,0.

Understand Academic Integrity - Chapman Learning Commons provides a guide explaining academic integrity with frequently asked questions and tips for avoiding plagiarism.

Respectful Environment

The University of British Columbia envisions a climate in which students, faculty and staff are provided with the best possible conditions for learning, researching and working, including an environment that is dedicated to excellence, equity and mutual respect. The University of British Columbia strives to realize this vision by establishing employment and educational practices that respect the dignity of individuals and make it possible for everyone to live, work, and study in a positive and supportive environment, free from harmful behaviours such as bullying and harassment.

Additional student academic and well-being resources are summarized in the attached file

Download attached file**.**

Course Summary:

Date	Details	Due
Mon Sep 9, 2024	Quiz Assignment 1 Part 1	due by 5:30pm
Mon Sep 16, 2024	Quiz Assignment 1 Part 2	due by 5:35pm
Fri Sep 27, 2024	Quiz Assignment 1 Part 3	due by 11:59pm
Mon Oct 7, 2024	Assignment Assignment 2 Part 1	due by 5:30pm
Wed Oct 9, 2024	Quiz Assignment 2 Part 1	due by 11:59pm
Wed Oct 16, 2024	Quiz Assignment 2 Part 2	due by 11:59pm
Mon Oct 21, 2024	Quiz Assignment 3 Part 1	due by 5:45pm
Mon Oct 28, 2024	Quiz Assignment 3 Part 2	due by 6pm
Mon Nov 4, 2024	Quiz Assignment 4 Part 1	due by 5:30pm
Sun Nov 17, 2024	Quiz Assignment 4 Part 2	due by 11:59pm
Mon Nov 18, 2024	Quiz Assignment 5	due by 5:30pm
Tue Nov 26, 2024	Quiz Assignment 6 Part 1	due by 11:59pm
Mon Dec 2, 2024	Quiz Assignment 6 Part 2	due by 6:30pm
Sun Dec 8, 2024	Quiz Assignment 6c (optional)	due by 11:5