

MECH452: Heat Transfer II

Instructor:	Ida Karimfazli
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Lectures:	Tues. & Thurs. 14:45-16:00 in H 625 SGW
Office hours:	TBA
Laboratory:	Every two weeks starting Jan. 16.
Course website:	https://users.encs.concordia.ca/~idak/mech452/
Textbook:	<i>Heat and Mass Transfer: Fundamentals and Applications</i> 5th edition, by Y. Çengel, A. Ghajar
Other references:	<i>Fundamentals of Heat and Mass Transfer</i> 7th edition, by F.P. Incropera <i>Heat Transfer</i> 9th edition, by J.P. Holman
Prerequisite:	MECH 351, 352, 361.

Course description: Heat exchangers. Condensation and boiling heat transfer. Principles of forced convection. Analysis of free convection from a vertical wall. Correlations for free convection in enclosed spaces. Mass transfer. Special topics of heat transfer. Lectures: three hours per week. Laboratory: two hours per week, alternate weeks.

Course objective:

This course is aimed at complementing MECH 352 with further aspects of convective Heat Transfer and introducing the student to some applications of convection heat transfer. It is also aimed at providing the students with a deeper understanding of the mechanisms that govern convection heat transfer processes. Heat-Mass transfer analogy is then used to introduce the student to convective mass transfer processes. After passing this course, the student should be able to address most engineering problems in Heat Transfer.

This course is also aimed at developing Design skills which are necessary in the design of a product or a process that would fulfill a certain need particularly in the area of Heat Transfer where the applications are almost endless. Class discussions and assignments address the design issues in heat transfer applications. A course project is dedicated to design a component or a process that would accomplish a given task or provide for a given need.

Grade breakdown:	Laboratory:	20%
	Quizzes:	30%
	Final:	50%, TBA, cumulative (covers the entire semester).

Course Policies:

- To pass the course students will need to get at least 50% overall and 50% in the Final Exam. Students who miss any three of the four written tests will have to repeat ALL the components of this course.

- Each quiz will include all the chapters taught prior to the quiz. The use of reference books or lecture notes is not allowed during the written tests. A formula sheet will be provided during each written test.
- If you think your quiz was not graded accurately, please download the Regrade Form from the course website, attach it to your quiz and give it to me within two weeks of receiving your quiz mark. Do not write anything on the quiz. Add your notes only on the regrade form.
- A list of practice problems from the reference book will be posted on the course website every week. These problems will serve as weekly assignments. Assignments are an essential component of the course and students are expected to solve assignments within a week of their release. Note however that the assignments will not be collected or marked.

Academic integrity:

The most common offense under the Academic Code of Conduct is *plagiarism*, which the Code defines as "the presentation of the work of another person, in whatever form, as one's own or without proper acknowledgement" (Article 19a). Please note that cases of plagiarism WILL be reported to the deans office. After due investigation, students found guilty of plagiarism on tests and examinations are usually given a final grade of 0 in the course, along with other penalties such as suspension or cancellation of a scholarships. Please refer to the Academic Integrity Website for more information:

<http://www.concordia.ca/students/academic-integrity.html>

Tentative course schedule:

01/11 to 01/25	Heat Exchangers	Chapter 11
01/30	Quiz 1	
02/01 to 02/15	Condensation and boiling heat transfer (continued)	Chapter 10
02/20 & 02/22	BREAK	
02/27 & 03/01	Condensation and boiling heat transfer	Chapter 10
03/06	Quiz 2	
03/08 to 03/29	Forced convection heat and mass transfer	Chapters 6, 8 & 14
04/03	Quiz 3	
04/05 to 04/12	Free convection	Chapter 9