COURSE CALENDAR DESCRIPTION

This course will develop students' understanding and problem solving skills in topics of heat and mass transfer, including: Steady and unsteady heat conduction (exact and numerical analysis); free and forced convection (internal and external); heat exchangers; thermal radiation; heat transfer with phase change; elements of mass transfer. Students will extend their knowledge previously learnt in Heat and Flow Engineering Principles and Fluid Mechanics to solve engineering problems. Prerequisite: LE/MECH 3202 3.00.

INSTRUCTOR(S)

<table>
<thead>
<tr>
<th>Name</th>
<th>Section / Format / Term</th>
<th>Contact Email</th>
<th>Contact Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sadek, Hossam</td>
<td>Sec. M / LECT / W</td>
<td><a href="mailto:sadekhs@yorku.ca">sadekhs@yorku.ca</a></td>
<td>416-736-2100 Ext 55991</td>
</tr>
</tbody>
</table>

ADDITIONAL INFORMATION

RECOMMENDED TEXTBOOK


COURSE LEARNING OUTCOMES

Upon successful completion of the course, the student will have demonstrated the ability to:
1. Relate principles related to different heat transfer (conduction, convection and radiation) and mass transfer mechanisms to phenomena in real life scenarios.
2. Formulate models for heat and mass transfer processes to solve particular problems using appropriate correlations and/or analytical analysis.
3. Apply the fundamental concepts of heat and mass transfer to model and analyze real life problems.
4. Apply the fundamental concepts of two phase heat transfer to solve problems related to boiling and condensation.
5. Evaluate performance and heat exchanger sizing of different types of heat exchangers.

LECTURE TOPIC

- Introduction and basic concepts
- Transient One-Dimensional Heat Conduction
- Fundamentals of convection
- External/Internal forced convection
- Natural Convection
- Heat Exchangers
- Radiation Heat Transfer
- Boiling and Condensation
• Mass Transfer

**EVALUATION SCHEME**
- Weekly Assignments – 15%
- Tutorials – 15%
- Quizzes – 10%
- Midterm Exam – 25%
- Final Exam – 35%

**ACADEMIC INTEGRITY LINKS**
- Senate Policy on Academic Honesty - [http://secretariat-policies.info.yorku.ca/policies/academic-honesty-senate-policy-on/](http://secretariat-policies.info.yorku.ca/policies/academic-honesty-senate-policy-on/)
- Academic Integrity - [http://lassonde.yorku.ca/academic-integrity](http://lassonde.yorku.ca/academic-integrity)

**STUDENT LINKS**
- Student Rights and Responsibilities - [http://oscr.students.uit.yorku.ca/student-conduct](http://oscr.students.uit.yorku.ca/student-conduct)
- Religious Observance - [https://w2prod.sis.yorku.ca/Apps/WebObjects/cdm.woa/wa/regobs](https://w2prod.sis.yorku.ca/Apps/WebObjects/cdm.woa/wa/regobs)
- Student Accessibility Services (SAS) - [https://accessibility.students.yorku.ca/](https://accessibility.students.yorku.ca/)
- York University’s Policies on Gender/LGBTQ*/Positive Space - [http://rights.info.yorku.ca/lgbtq/](http://rights.info.yorku.ca/lgbtq/)

**LAND ACKNOWLEDGEMENT**
- We acknowledge our presence on the traditional territory of many Indigenous Nations. The area known as Tkaronto has been care taken by the Anishinabek Nation, the Haudenosaunee Confederacy, the Huron-Wendat, and the Métis. It is now home to many Indigenous Peoples. We acknowledge the current treaty holders, the Mississaugas of the New Credit First Nation. This territory is subject of the Dish With One Spoon Wampum Belt Covenant, an agreement to peaceably share and care for the Great Lakes region.

Many courses utilize Moodle, York University’s course website system. If your course is using Moodle, click here to access it.

**Moodle @ York University**