COURSE CALENDAR DESCRIPTION

This course covers properties and behaviour of substances, first and second laws of thermodynamics, applications of thermodynamics laws to closed and open systems, and availability. Prerequisites: SC/PHYS 1800 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. A / LECT / F</td>
<td><a href="mailto:sadekhs@yorku.ca">sadekhs@yorku.ca</a></td>
<td>416-736-2100 Ext. 55991</td>
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ADDITIONAL INFORMATION

RECOMMENDED TEXTBOOK


COURSE LEARNING OUTCOMES

Upon successful completion of the course, the student will have demonstrated the ability to:
1. Analyze simple engineering systems involving energy balance by applying the First Law of Thermodynamics for closed and open system.
2. Evaluate thermodynamic properties (e.g. pressure, specific volume, temperature, etc.) of liquids, solids, and/or ideal gases.
3. Analyze entropy change or balance for different systems.
4. Analyze vapor power cycles (e.g. Rankine cycle) in which the working fluid is alternately vaporized and condensed.
5. Analyze gas power cycles (e.g. Carnot, Otto, Diesel, Dual, Brayton, etc.)

LECTURE TOPIC

- Introductory Concepts and Definitions
- Evaluating Properties, Energy
- Energy Analysis of Closed Systems
- Mass and Energy Analysis of Control Volumes
- The Second Law of Thermodynamics
- Entropy
- Vapour Power Cycles
- Gas Power Cycles

EVALUATION SCHEME

Weekly Assignments – 10%
Tutorials – 15%
Quizzes – 10%
Midterm Exam – 25%
Final Exam – 40%

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

**STUDENT LINKS**
- Student Rights and Responsibilities - http://oscr.students.uit.yorku.ca/student-conduct
- Religious Observance - https://w2prod.sis.yorku.ca/Apps/WebObjects/cdm.woa/wa/regobs
- Student Accessibility Services (SAS) - https://accessibility.students.yorku.ca/
- York University’s Policies on Gender/LGBTQ*/Positive Space - 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.
- The Indigenous Framework for York University: A Guide to Action can be found here: http://indigenous.info.yorku.ca/
- Meaning of a land acknowledgement: http://healthydebate.ca/opinions/indigenous-land-acknowledgements

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

**Moodle @ York University**