EXPANDED COURSE DESCRIPTION
MECHANICAL ENGINEERING
Lassonde School of Engineering
Mechanical Engineering
LE / MECH 2201 3.0 SECTION A
THERMODYNAMICS
FALL 2018 / WINTER 2019

Last Modified Date: 08/17/2018

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/CHEM 1100 4.00, 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>
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</thead>
<tbody>
<tr>
<td>Sadek, Hossam</td>
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ADDITIONAL INFORMATION

LECTURE TOPICS

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

Assignments - 8 - 10%
Tutorials - 15%
Quizzes - 10%
Midterm Exam - 25%
Final Exam - 40%

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
2. Evaluate thermodynamic properties (e.g. pressure, specific volume, temperature,) of liquids, solids, and/or ideal gases.
3. Analyze entropy change or balance for different
4. Analyze vapor power cycles (e.g. Rankine cycle) in which the working fluid is alternately vaporized and
5. Analyze gas power cycles (e.g. Carnot, Otto, Diesel, Dual, Brayton, )

RECOMMENDED TEXTBOOK
Thermodynamics – An Engineering Approach, Yunus A. Cengel, and Michael A. Boles, McGraw Hill, USA

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
• Academic Accommodation for Students with Disabilities -
  http://secretariat-policies.info.yorku.ca/policies/academic-accommodation-for-students-with-disabilities-policy/
• Counselling and Disability Services - http://cds.info.yorku.ca/
• York University Racism Policy and Procedures -
  http://secretariat-policies.info.yorku.ca/policies/racism-policy-and-procedures/
• York University’s Policies on Sexual Violence -
  http://secretariat-policies.info.yorku.ca/policies/sexual-violence-policy-on/
• 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

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