

**King Saud University**  
**Mechanical Engineering Department**  
**ME 374 Thermodynamics II**

**Instructors:** Prof. Hany Al-Ansary

**Office:** 2C87

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**Course Description**

**Me 374 Thermodynamics II**

Availability; Ideal gas mixtures; Gas vapor mixtures; Thermodynamics of reciprocating gas compressors; Chemical reactions; Gas power cycles.

**Textbook:** Thermodynamics: An Engineering Approach, by Cengel and Boles

**Course Content**

	<b>Topic</b>	<b>Sections</b>	<b>Home work</b>
1	Second law analysis (availability or exergy) for open and closed systems	Chapter 8	To be announced by the end of the chapter
2	Reciprocating air compressor, single and multi-stage with inter-cooling	Chapter 7, Sec. 10 and 11	To be announced by the end of the chapter
3	Gas Power Cycles.	Chapter 9, Sec. 3- 6 including dual cycle and Sec. 8 (Ideal Brayton cycle)	To be announced by the end of the chapter
4	Ideal Rankine cycle	Chapter 10, Sec. 1 and 2	To be announced by the end of the chapter
	Refrigeration cycle (Ideal vapor compression cycle)	Chapter 11, Sec. 1- 3	To be announced by the end of the chapter
5	Basic laws of ideal and real gas mixtures	Chapter 13	To be announced by the end of the chapter
6	Properties of gas-vapor mixtures	Chapter 14, Sec. 1- 4	To be announced by the end of the chapter
7	Combustion stoichiometric, first law application to a reacting system	Chapter 15, Sec. 1- 5.	To be announced by the end of the chapter

**Design Content:** None

**Lectures:** 100 %

**Laboratory Portion:** None

**Assessment Tools:**

Homework + quizzes:           **10 %** (3 for HW and 7 for quizzes)

2 Midterm Exams:               **45 %**

EES application                 **5%**

Final Exam:                       **40 %**

**First midterm exam Monday 6/2/1440 (15/10/2018) at 6:00 PM**

**Second midterm exam Sunday 10/3/1440 (18/11/2018) at 6:00 PM**

Note: (a) Above %25 absentee will not be allowed to take the final exam. (b) Have your text with you in each class and tutorial.

**Prepared by:**

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**Date:** September 2, 2018