

King Saud University
Mechanical Engineering Department
ME 371 Thermodynamics -I-

Course Objectives:

Thermodynamics is a basic course that serves as the background for many thermo-fluid courses. The main objective of the course is to provide the engineering student with the basic principles of thermodynamics through the study of the first and second laws of thermodynamics and applications.

Credit hours: 3

Textbook: Thermodynamics: An Engineering Approach, by Cengel and Boles, 6th or Latest Edition.

Course Content

Chapter		Sections	Home work (6 th edition)	Home work (7 th edition)
1	Introduction and Basic Concepts	1.1-1.9		
2	Energy, Energy Transfer, and General Energy Analysis	2.1-2.8	12, 13, 23, 25, 29, 32, 52, 62, 63	9,10,19,21,25,28,46,57,58
3	Properties of Pure Substances	3.1-3.7	25, 28, 32, 40, 77, 89, 90	23,26,33,87,88
4	Energy Analysis of Closed Systems	4.1-4.5	12, 18, 23, 28, 37, 41, 65, 73, 79	9,16,21,31,35,38,65,70,74
5	Mass and Energy Analysis of Control Volumes	5.1 - 5.4	9, 21, 30, 36, 50, 56, 66, 75, 80	7,21,28,33,46,52,63,72,76
6	The Second Law of Thermodynamics	6.1 - 6.11	21, 22, 52, 55, 78, 79, 105, 107	20,21,49,55,75,76,102,105
7	Entropy	7.1-7.13	23, 25, 34, 37, 85, 89, 113, 122, 126	23,36,29,778,84,108,115,117

Design Content: None

Lectures: 100 %

Laboratory Portion: None

Assessment Tools:

Homework + quizzes: 10 % (3 for HW and 7 for quizzes every two weeks)

2 Midterm Exams: 40 %

Semester report 10% (Report, discussion and presentation)

Final Exam: 40 %