BOSTON UNIVERSITY-Spring Term 2011
ME 304 ENERGY and THERMODYNAMICS

Text: "Fundamentals of Engineering Thermodynamics" 7th Edition by Moran and Shapiro
Wiley & Sons 2008 ISBN 978-0-470-49590-2

The presentation of the course material is straightforward: FIRST-present the concept, the theories and principles, THEN: work many examples. Thermodynamics, like most engineering subjects is mastered through the application to meaningful examples-the types of problems that would be encountered in real engineering experience. The Professor will instruct the student by example and not necessarily by words. For the student's part HOMEWORK will be mandatory and will be submitted for review and a grade. This is not meant to be a form of corporal punishment but rather the only way that the student can best understand the material **AND the only way that the Instructor can keep tract of your understanding of what has been presented.** **Ultimately, the homework helps students not to be left behind**.

We will be covering all of the material in Chapters 1 through 13 during this course. This requires that approximately 1 chapter every 3 lectures. Although this seems a considerable amount of work, the Instructor will aid the student by picking the most relevant sections and topics that the student will need in the future for other course work as a student and then later for professional engineering applications. Problems from the text will be picked out for solution so as to 'demonstrate' the key points of the concepts that are being taught during each lesson. The use of worked-examples is so important that I plan to spend the last half the class on the problems that have been assigned or ones that are similar to the problems that have been assigned.

GRADING:	*Grades;*
HOMEWORK 20%	**A 90-100**
QUIZ No. 1- 20%	**B 80-89**
QUIZ No. 2- 20%	**C 70-79**
Two laboratory exercises together 20%	**D 60-69**
FINAL EXAM 20%	**F 0-59**

All tests are open book, open notes and open homework.

NOTE: Laboratory exercises MUST be completed in order to pass the course.

SCHEDULE: **Mon. and Wed., 8:00 A.M. -10:00 A.M. ; Room PHO 203**
CONFERENCE HOURS: Before and after class and by appointment

INSTRUCTOR:
Peter Kerney, Consultant and Adjunct Professor
Office Room 307 AME Bldg. (110 Cummington Street)

IN CONCLUSION:
THERE ARE NO STUPID QUESTIONS. VERY OFTEN THE STUDENT AVOIDS ASKING QUESTIONS OUT OF FEAR OF REVEALING SOME WEAKNESS IN A SUBJECT AREA. THERE ARE MORE QUESTIONS IN THERMODYNAMICS THAN ANSWERS SO DO NOT FEAR THAT YOU ARE ALONE IN WONDERING ABOUT THE PRECISE MEANING OF SOME CONCEPT OR TOPIC. OFTEN AN ANSWER TO ONE STUDENT'S QUESTION BRINGS EVERYONE'S UNDERSTANDING OF THE TOPIC AT HAND "UP A NOTCH". YOUR QUESTIONS ARE ALWAYS WELCOMED AS AN IMPORTANT CONTRIBUTION TO THE COURSE AND IN-CLASS INSTRUCTION.

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Week Beginning	Topics	Reading
1/17	Systems, properties, processes	1.1 – 1.9
1/24	Work and Heat	2.1 – 2.6
1/31	Ideal gas model, pure substances	3.1 – 3.15
2/7	First Law of Thermodynamics	4.1 – 4.6
2/14	Control Volumes	4.7 – 4.12
2/21	Second Law of Thermodynamics	5.1 – 5.6
2/28	Carnot Cycle, Thermal Efficiency	5.7 -5.11
3/7	Entropy	6.1 – 6.5
3/21	Entropy and Exergy	6.6 – 6.13 7.1 – 7.7
3/28	Gas and Vapor Power Systems	8.1 – 8.6 9.1 – 9.14
4/4	Refrigeration Systems	10.1 – 10.7
4/11	Thermodynamic Relations	11.1 – 11.9
4/18	Ideal Gas Mixtures and Psychrometric Applications	12.1 – 12.9
4/25	Reacting Mixtures and Combustion	13.1 – 13.9