MAE 521 – ADVANCED THERMODYNAMICS 1

Fall 2013, MWF 02:00 – 02:50 PM

Instructor: Dr. V'yacheslav (Slava) Akkerman
      Room 273 Annex ESB, Vyacheslav.Akkerman@mail.wvu.edu

Textbook: Fundamentals of Engineering Thermodynamics, 7th Edition, M.J. Moran.
      H.N. Shapiro, D.D. Boettner, M.B. Bailey, John Wiley & Sons, 2011

Course Grading:

Attendance	10 %	A	90~100
Homework assignments	15 %	B	80~89
1st Mid-Term Exam	10 %	C	70~80
2nd Mid-Term Exam	10 %	D	60~70
Quiz	10 %	F	< 60
Referee reports	15 %		
Final Exam	30 %		

Course Content:
1. Math/Calculus Trivia
2. Thermodynamics Concepts and Definitions
3. First Law of Thermodynamics
4. Second Law of Thermodynamics
5. Third Law of Thermodynamics
6. Available Energy Concepts, Exergy
7. Introduction to Properties of Pure Substances
8. Property Relationships – Pure Substances
9. Equations of State
10. Equilibrium
11. Introduction to Irreversible Thermodynamics
12. Thermodynamics Potentials and Relations
13. Basics of Combustion Thermodynamics
14. Thermodynamics of Internal Combustion Engines

Comments:
1. Students are responsible for lecture material, handouts and reading assignments
2. Homework is due at the beginning of the class
3. Attendance is not mandatory but students are responsible for any missed material
4. The final exam will be comprehensive

Social Justice Statement:

West Virginia University is committed to social justice. I concur with the commitment and expect to maintain a positive learning environment based upon open communication, mutual respect, and nondiscrimination. Our university does not discriminate on the basis of race, sex, age, disability, veteran status, religion, sexual orientation, and color or nation origin. Any suggestion as to how to further such a positive and open environment in this class will be appreciated and given serious consideration.

If you are a person with a disability and anticipate needing any type of accommodations in order to participate in this class, please advise me and make appropriate arrangement with Disability Service (293 – 6700).

Month	Date	Day	Period	Activity	Assignment Day
August	19	M	1	Introductory lecture / Calculus Review	
	21	W	2	Ch 1.1-1.4	
	23	F	3	Ch 1.5-1.9	
	26	M	4	Ch 2.1, 2.2	
	28	W	5	Ch 2.3, 2.4	
	30	F	6	HW 1 Review	HW 1
September	2	M		Labor Day, Recess	
	4	W	7	Ch 2.5-2.7	
	6	F	8	Ch 3.1, 3.2	
	9	M	9	Ch 3.3-3.5	
	11	W	10	Ch 3.6-3.8	
	13	F	11	Ch 3.9-3.11	
	16	M	12	Ch 3.12-3.15	
	18	W	13	Ch 4.1-4.3	
	20	F	14	Ch 4.4-4.7	
	23	M	15	Ch 4.8-4.10	
	25	W	16	HW 2 Review	HW 2
	27	F	17	*Midterm Exam 1*	
	30	M	18	ME 1 Review	
October	2	W	19	Ch 4.11, 4.12	
	4	F	20	Ch 5.1, 5.2	
	7	M	21	Ch 5.3-5.5	
	9	W	22	Ch 5.6-5.8	
	11	F	23	HW 3 Review	HW 3
	14	M		Columbus Day, Recess	
	16	W	24	Ch 5.9-5.11	
	18	F	25	Ch 6.1, 6.2	
	21	M	26	Ch 6.3-6.5	
	23	W	27	Ch 6.6-6.8	
	25	F	28	Ch 6.9-6.11	
	28	M	29	Ch 6.12, 6.13	
	30	W	30	Ch 7.1-7.3	
November	1	F	31	HW 4 Review	HW 4
	4	M	32	Ch 7.4, 7.5	
	6	W	33	Ch 7.6, 7.7	
	8	F	34	Ch 8.1, 8.2	
	11	M	35	Ch 8.3, 8.4	
	13	W	36	HW 5 Review	HW 5
	15	F	37	*Midterm Exam 2*	
	18	M	38	ME 2 Review	
	20	W	39	Ch 8.5, 8.6	
	22	F	40	Ch 9	
	25–29	MWF		Thanksgiving, Recess	
December	2	M	41	Ch.11	
	4	W	42	Ch 14	
	6	F	43	Ch 14	
	9	M	44	Summary (last class)	HW 6
	16	M		*Final Exam, 12/16/2013, 8:00 – 10:00 AM*	