AME 513

Principles of Combustion

Fall 2013, OHE 100C, F 9:00-11:50 am

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References:

1. Combustion Physics, by C.K. Law, 1st Edition, Cambridge University Press, 2006, (required).
2. Unpublished notes updated yearly, by C.K. Law & F.N. Egolfopoulos (will be provided).
3. Combustion Theory, by Forman A Williams, 2nd Edition, Addison-Wesley, 1985.
4. Combustion, Flames, and Explosions of Gases, by Bernard Lewis and Guenther von Elbe, 3rd Edition, Academic Press, 1987.
5. Combustion, by Irvin Glassman, 3rd Edition, Academic Press, 1996.
6. An Introduction to Combustion, Concepts and Applications, by Stephen R. Turns, 2nd Edition, McGraw-Hill, 2000.
7. Molecular Theory of Gases and Liquids, by Joseph O. Hirschfelder, Charles F. Curtiss, and R. Byron Bird, 2nd Edition, John Wiley & Sons, 1963.
8. Physical Chemistry, by P.W. Atkins, 4th Edition, W.H. Freeman and Company, New York, 1990.
9. Chemical Kinetics, by Keith Laidler, 3rd Edition, Harper and Row, 1987.
10. Chemical Kinetics of Gas Reactions, by V.N. Kondrat'ev, Pergamon Press, 1964.
11. Physical Chemistry of Fast Reactions, Volume 1, Gas Phase Reactions of Small Molecules, edited by B.P. Levitt, Plenum Press, 1973.
12. Thermochemical Kinetics, by Sidney W. Benson, John Wiley & Sons, 1968.

Topics:

Introduction
Chemical Thermodynamics
Chemical Kinetics
Transport Phenomena
Conservation Equations
Non-Premixed Flames
Premixed Flames
Aerodynamics of Laminar Flames
Environmental Combustion Considerations

Grading:				
	Midterm Exam	October 18 (F)	(9:00 am-10:30 am)	35%
	Final Exam	December 9 (M)	(11:00 am-1:00 pm)	45%
	Homework			20%

Note: **The use of laptops or cell phones to access the internet/e-mail during class and/or exams is not allowed.**