EML 6131 Combustion Phenomena
Fall 2013
Department of Mechanical and Aerospace Engineering
University of Central Florida

Goals To familiarize the student with the fundamentals for analysis of reacting flows and flame phenomena and applications to practical combustion systems. This course will provide an introduction to the physics and chemistry that underlie combustion phenomena and to apply this information to the analysis of some simple combustion processes, including spontaneous ignition and the propagation of one-dimensional combustion waves. The student will also be equipped with knowledge for advanced literature reading.

Description Physical and chemical aspects of combustion phenomena, Flame temperature, Rate processes, Chemical kinetics, Oxidation, Reaction Rates, Ignition Phenomena, Detonations and Deflagrations, Pollution, Premixed Flames, Diffusion flames, Fundamental combustion experiments, Practical combustion devices.

Credit Hours 3 (3 lecture hours per week)

Prerequisites EML 4703 "Fluid Mechanics II" and EGN 3343 "Thermodynamics" or consent of the teacher

Instructor Dr. Subith S. Vasu
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Texts **1)** I. Glassman and R. Yetter, Combustion, Fourth Edition, Academic Press, 2008. **Note:** This book is available online for free of cost, e.g. at sciencedirect.com using your ucf student library account, you will be able to download the pdf file.
2) Stephen R Turns, An Introduction to Combustion Concepts and Applications, 3rd edition, Mc GrawHill, 2012.

Reference Additional notes will be distributed online. Reference materials will be mentioned during lectures.

Meetings Tue & Th, 3 – 4:15 PM
Business Administration 216A

Office Hours Th 4:15-6 PM

Exams & Grading Exams may include conceptual questions, derivations and numerical calculations.

Mid Term Exam	25 points	Oct 15 (Tuesday), in class
Final Exam	30 points	Dec 5 (Thursday), 1 pm-3.50 pm
Projects	25 points	Due online via webcourses, before Dec 5, 1pm
Homework	20 points	Due online via webcourses, on due dates
Total = 100 Points		

Final Grade ≥ 90: A 80-89: B 70-79: C 60-69: D 0-59: F
Grade curving, Pluses and minuses, and any other changes to the grading policies will be at the discretion of the instructor.

Homework Homework problems will be assigned and solutions will be made available before exams. Homework will not be graded - therefore each submission will earn full credits. Submission of homework is via web courses (preferably pdf) on the due date. Include your name and homework no as part of the file name. **Hard copies & email attachments will not be accepted.** *Note that mastering homework problems may help performance in exams.*

Projects Projects will be assigned and graded. Submission of homework is via web courses on the due date. All projects are due at the end of the semester before the final exam. **Hard copies & email attachments will not be accepted.**

Honor Code Any cheating in exams, homework, and projects will result in an automatic F for semester grade. Medical emergencies will be accepted for absence in exams only with a supporting letter from your physician. No make-up exams will be given without supporting official documentation.

International students must register for the live class, as required by SEVIS.