EAS 6138 - Gasdynamics

S. Roy, Professor, 336 MAE-B roy@ufl.edu

Prerequisites

EAS 4103 or EML 5714 or any course in one-dimensional compressible flow.

Course Objective

The objective of this course is to explore concepts related to Gasdynamics and compressible flows. The course will use the basic understanding of one dimensional isentropic flow as the starting point and expand into more advance concepts of compressible flows. The skills developed in this class are important to a variety of mechanical and aerospace engineering applications.

Topics

Below is an approximate list of the topics that will be covered in this class.

Review of 1-D isentropic concepts	Linearized flow equations
Wave propagation	Transonic flows
Shock Tubes	Method of characteristics
Oblique shocks and wedge flows	Potential Flow
Thin airfoil theory	Compressible Boundary Layers
Multi-dimensional compressible flow	Special Topics Numerical Methods

Text and Other Resources

- **Class Text:** Elements of Gasdynamics, by H. Liepman and A. Roshko, Dover Publications. .
- **Supplemental Text:**
  - Zucrow and Hoffman, "Gas Dynamics," Volume 1, Wiley, 1976
  - Anderson, "Modern Compressible Flow," McGraw Hill, 1990
  - Schreier, "Compressible Flow," Wiley, 1982

Course web page

- Maintained through UF and can be found by signing into Sakai at lss.at.ufl.edu

Grade Determination

Homework	Assigned, Not Graded	
Paper Reviews (assigned)	20%	
Exams (take-home)	40%	(around 7th and 14th week)
Project (see note below)	40%	
Total	100%	

Project: Discuss any project idea that you may have that is suitable for this course. This should be finialized by the middle of the semester. Topics may be relevant to your research, you may write your own code to design a nozzle or use CFD software to solve a problem of your interest.

Instructor Information

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Personal Responsibility

You are personally responsible for all information disseminated during the lectures. This means knowing homework due dates, what material they will cover, knowing when the project is due, and knowing all material, handouts, and announcements made in the lectures, whether or not you were present. Importantly, this is a graduate course. DO NOT expect the lecture to cover everything. Some parts of your homework and project may cover materials on the subject that are available in published literature and on the internet.

Late / Makeup Work

Students are permitted one late HW submission, provided the HW is handed in prior to the posting of the solution. The request for this extension must be made to the instructor before the due date of the assignment.

Academic Honesty

All students admitted to the University of Florida have signed a statement of academic honesty committing themselves to be honest in all academic work and understanding that failure to comply with this commitment will result in disciplinary action. This statement is a reminder to uphold your obligation as a student at the University of Florida and to be honest in all work submitted and exams taken in this class and all others.

Accommodations for Disabilities

Students with disabilities who are requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodations.

Other Student Resources

University Counseling Center - (352) 392-1575 - http://www.counsel.ufl.edu/default.asp
Mental Health Services - (352) 392-1171 - http://www.health.ufl.edu/shcc/smhs.htm
Alachua County Crisis Center - (352) 264-6789
ASME web site on ethics - http://www.asme.org/ethics/