AE210 Jan 3:0

Gas Dynamics

Instructor

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Teaching Assistant

Email:

Department: AE

Course Time: MWF 10-11 am

Lecture venue: AE 104

Detailed Course Page:

Announcements

Brief description of the course

Gas dynamics concepts and analyses as a basis for compressible aerodynamics and propulsion. UG engineering, fluid dynamics, thermodynamics.

Prerequisites

none

Syllabus

Concepts, terms, definitions. 1-d analyses for duct flows. Shocks. Prandtl-Meyer expansion. 2-d supersonic flows. Method of characteristics. 1-d unsteady flows. viscous effects. Special topics in applications like intakes.

Course outcomes

Understand differences between compressible and incompressible flows. Understand driving forces and consequences and obtain quantitative estimates in duct flows. Know effects of shocks and expansions. Be able to calculate changes to flows across shocks/expansions.

Grading policy

Assignments 10%

2 tests 20% each

1 Final 50%

Assignments

Assignments given throughout the term as topics are completed.

Resources

Text books on gas dynamics such as Liepmann & Roshko, Shapiro, and several others.