



AE203 AUG 3:0

Fluid Dynamics

Instructor

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Teaching Assistant

Email:

Department: AE

Course Time: MWF 10-11 am

Lecture venue: AE 105

Detailed Course Page:

Announcements

1st lecture is on 1st MWF beginning 2 Aug.

Brief description of the course

Entering post-graduate students with UG in engineering, MSc Physics or Maths

Introductory course, intended to give students a foundation for an authoritative understanding of fluid dynamics for engineering analysis, especially for Aerospace and Mechanical Engineering applications.

Prerequisites

None

Syllabus

Concepts, terms, definitions. Kinematics. Potential flow. Airfoil geometry and forces. Control volume analyses. Integral & differential forms of conservation laws. Integral analyses with mass and momentum.

Dimensional analysis & Similitude. Navier-Stokes equations. Vorticity theorems. Viscous flows.

Turbulent flow. Turbulence modelling.

Course outcomes

Know foundational concepts for analysing fluid dynamics. Learn to perform integral analyses and overall balances from conservation laws and differential equations analyses for fields. Understand modeling approximations such as inviscid, incompressible, turbulent for different types of flows.

Grading policy

25% for 2 tests, or 20% X 2 tests + 10% for assignments and 50% for final.

Assignments

Assignments are given throughout the term with a week for submission.

Resources

Many text books available. e.g., Gupta & Gupta, J Fay. Many others as additional reading.