



Turbulence

MECHENG 7513

Credit Hours:

3.00 - 3.00

Course Levels:

Graduate (5000-8000 level)

Course Components:

Lecture

Course Description:

A study of fundamentals of turbulent fluid flows and a few canonical flows.

Prerequisites and Co-requisites:

Prereq: 6505 (705), or permission of instructor.

Course Goals / Objectives:

- Be able to understand fundamentals of turbulence
 - Be able to understand the governing equations of fluid flows
 - Be able to understand the current status of computational and theoretical work
 - Be able to understand the current status of experimental measurements
 - The students by the end of the course should be able to understand the current status of experimental measurements fundamentals of some canonical flows such as free shear layers, jets, boundary layers, etc.
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Course Topics:

- Introduction to turbulence
 - Transport equations
 - Probability and statistic
 - Vorticity dynamics
 - Spectral dynamics
 - Free shear flows
 - Wall bounded shear flows
 - Turbulence modeling
 - Experimental techniques for turbulence measurements.
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Designation:

Elective