

Fluid Mechanics - Course Syllabus

Course Number: ME 200A

Course Title: Fluid Mechanics

Academic Semester: Spring **Academic Year:** 2015/ 2016
Semester Start Date: Jan 24, 2016 **Semester End Date:** May 19, 2016

Class Schedule: Mon/Wed 10 am

Classroom Number: TBD

Instructor(s) Name(s): Sahrawi Chaib
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Office Location: 4237
Office Hours: 1-3

COURSE DESCRIPTION FROM PROGRAM GUIDE

Fundamentals of fluid mechanics. Microscopic and macroscopic properties of liquids and gases; the continuum hypothesis; review of thermodynamics; general equations of motion; kinematics; stresses; constitutive relations; vorticity, circulation; Bernoulli's equation; potential flow; thin-airfoil theory; surface gravity waves; buoyancy- driven flows; rotating flows; viscous creeping flow; viscous boundary layers; introduction to stability and turbulence; quasi one-dimensional compressible flow; shock waves; unsteady compressible flow; acoustics.

COMPREHENSIVE COURSE DESCRIPTION

This course covers important topics in fluid mechanics. It will first cover basics concept in mechanics and fluid mechanics and then it shift to solving particular problems in fluid mechanics. Concept such as surface tension, viscosity and waves will be covered in details. We will discuss steady and unsteady flow. The course pace will depend on the general dynamics of the class. Details will be found in the course list

GOALS AND OBJECTIVES

- Important concepts and methods in fluid mechanics
- Some important and useful methods in fluid mechanics
- How to solve real life problems in fluid mechanics.

REQUIRED KNOWLEDGE

ME212, AMCS 202

REFERENCE TEXTS

Fluid Mechanics by Kundu and Cohen (reference book-ebook available)

Fluid mechanics by Kraus

Fluid Mechancis by Currie

Fluid mechancis by Potter and Wiggert

METHOD OF EVALUATION

Graded content
Homework: 30% (They are due one week from the day they are handed out. They should be returned at the beginning of the class before the start of the class.) Midterm: 20% Project: 20% Final: 30%

COURSE REQUIREMENTS

Assignments

Homeworks and tests as well as project.

Course Policies

There will be no make-up exams.

There will not be any extra credit.

Late hws will not be considered for grading.

NOTE

The instructor reserves the right to make changes to this syllabus as necessary.