Course Outline

• Title: Fluid Mechanics (流體力學)
• Type: Required for undergraduate students
• Credit: 3
• Prerequisite: Physics, Engineering Mechanics, Engineering Mathematics
• Lecturer: Chung Fang
• Description: Fluid mechanics is that discipline within the broad field of applied mechanics concerned with the behavior of liquids and gases at rest or in motion. It is the very fundamental discipline to civil and other engineering sciences. After visiting the course the participants are expected to have a very clear and sound understanding of the mechanics of fluids, and are able to apply what they have learned to practical problems.

• Contents:
  Part I.
  1. Introduction
  2. Fluid statics
  3. Elementary fluid dynamics – the Bernoulli equation
  4. Fluid Kinematics
  5. Finite control volume analysis
  6. Differential analysis of fluid flow
  7. Similitude, dimensional analysis and modeling
  8. Viscous flow in pipes
  9. Flow over immersed bodies
  
  Part II.
  10. Open-channel flow
  11. Turbomachines
  12. Introduction to compressible flow

• Textbook & References:
Introductory level:

Advanced level:

• Grading Policy:
  1st Midterm exam: 25%, 2nd Midterm exam: 35%, Final exam: 40%

• Office hour:
  AM 10:00 – 12:00, Wednesday, Room 47248, CE Department

• Advanced Courses:
  Advanced Fluid Mechanics
  Viscous Flows
  Compressible Flows / Aerodynamics
  Non-Newtonian Fluid Mechanics / Rheology
  Mass and Heat Transfer
  Wind Effects on Structures
  Meteorology