



457.309.002 Hydraulics and Laboratory .00 Class Introduction



Prepared by Jin Hwan Hwang



Course Information

- Title: Hydraulics & Laboratory
- Lecturer : Jin Hwan Hwang
 - E-mail: jinhwang@snu.ac.kr
 - You can meet me anytime with appointment
 - Location : 35-306
 - Office Tell : 880-7346 (email prefer)
- Class: Tuesday and Thursday, 14:00 ~ 15:45
 - Lecture : Tuesday and Thursday (14:00~14:50)
 - Lab-exercise : Schedule with T.A.s.
 - Why don't you do on Friday night or Saturday night?

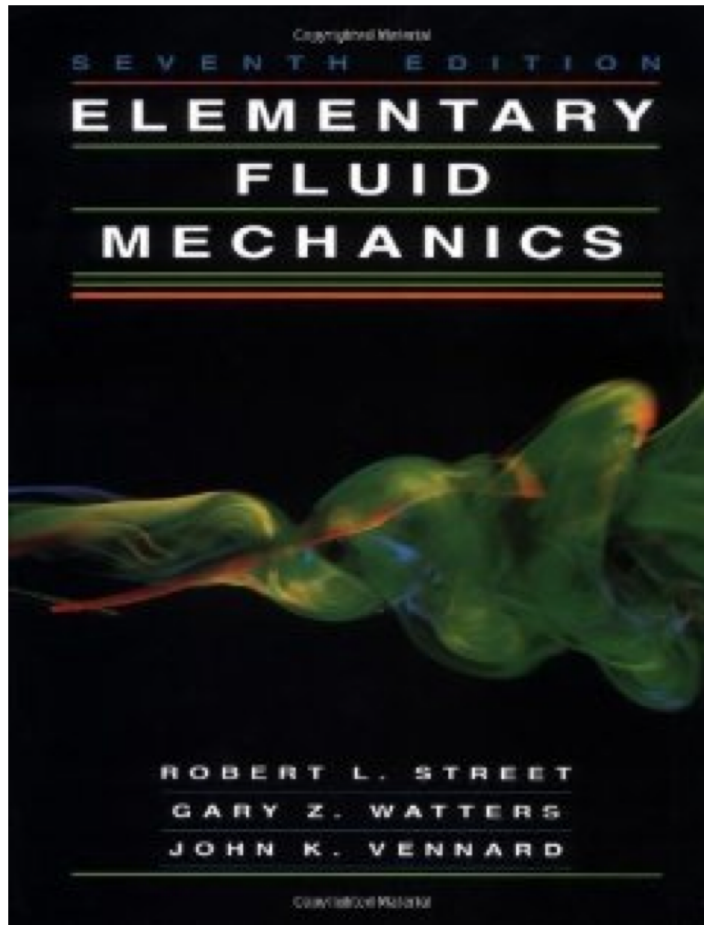


Objectives

- Learning the basic knowledge for the practical problem and exercising the way of understanding the flow's physics related with *Open and/or Closed Channels* by mathematical and/or empirical methods.
- Close channel will discuss the basic knowledge related with designing how efficiently to deliver liquids to the targeted location.
- Open channel will cover the understandings of the physics related with WATER in the river, the reservoir and the ocean.



Course Information



- Main text:
 - Street, R.L., Watters, G.Z., and Vennard, J.K., 1996, Elementary Fluid Mechanics
- Supplementary reading materials:
 - Cruise, J.F., Sherif, M.M., and Singh, V.P., 2007, Elementary Hydraulics
 - Van Te Chow, 1960, Open-Channel Hydraulics
 - Etc.



Course Information



- Pre-requisite
 - Physics 1, calculus 1 & 2, and fluid mechanics

- Grade policy

— Midterms (1) :	25% + open ended q. 5 %
— Final exam (1):	25% + open ended q. 5% (or not)
— Lab Reports:	30% as a team (4-5 a team)
— Participants:	10% (assessed by T.A.)



Course Schedule (Tentative)

week	Lecture	Experiment
1	Introduction	How to write lab report?
2	Review of fluid mechanics 1	
3	Review of fluid mechanics 2	Measuring velocity and boudary layers.
4	Turbulent flow in rough pipe1	
5	Turbulent flow in rough pipe2	Lab-report due date
6	Turbulent flow in rough pipe3	
7	Pipe problem 1	Measuring shear stresses
8	Pipe problem 2	
9	Unsteady flows in the pipe	
10	Unsteady flows in the pipe	Lab-report due date
11	Review of Impulse momentum theorem	Experiment of hydraulic jump
12	Open channel flow	
13	Open channel flow	
14	Gradually Varied Flow	Lab-report due date
15	Lift & Drag	
16	Fluid measurement	