EN 410  ENVIRONMENTAL FLUID MECHANICS

FALL 2006
Professor J. J. Lee

Catalog Description: Equation of motion, continuity, momentum, energy principles; dimensional analysis, similitude; ground water flows transports in conduits and channels; mixing dispersion in environments; manifold diffusers; hydraulic transients

Prerequisites: Math 226,

Topics Covered:

1. Introduction and Properties of Fluid
2. The Basic Equations: Continuity equation, Equation of motion with or without viscosity, Hydro & Aerostatics, Boundary conditions.
3. The Bernoulli Equation and Its Application to Fluid Flow problems
4. Momentum Theorems
5. Dimensional Analysis and Similitude
6. Element of Potential Flow and Boundary Layer Concepts
7. Analysis of Flows in Pipes
8. Analysis of Flow in Channels
9. Ground Water Flow, Pumping tests
10. Mixing and Dispersion in Environments, Multi-port Diffusers, Hydraulic Transients

Home Work: 6-8 problems each week, due one week from the assigned date.

Examinations and Grading:

Two Mid-term Exams (40%)
One Final (45%)
Home Work (15%)


Instructor:

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