Fluid Mechanics

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TOPICS

1. Introduction ∼ 1.5 weeks
2. Static fluids ∼ 2 weeks
3. Fluid kinematics ∼ 1 week
4. Inviscid flow (differential approach): Euler’s equation of motion and Bernoulli’s equation ∼ 2 weeks
5. Control volume theorems (integral approach) ∼ 2 weeks
6. Navier–Stokes equations and viscous flow ∼ 1.5 weeks
7. Similarity and dimensional analysis ∼ 1 week
8. Internal flow: laminar and turbulent pipe flows ∼ 1 week
9. External flow: boundary layers, separation and its effects on lift and drag ∼ 2 weeks
10. Potential flow: complex potential, analytical solutions for simple 2-D flows, and superposition of the simple elemental flows as representations of flows over 2-D bodies ∼ 1 week

Textbook:


Course FTP site:

IP: 140.116.155.111, port 21; username/password: student

Grading:

Two mid-term and one final exams ∼ 75%
Quizzes (end of each chapter) and special assignments ∼ 20%
Four labs: two reports and one quiz ∼ 15%