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Department of Civil Engineering	
Fluid Mechanics (61341)	
Total Credits	**3**
major compulsory	
Prerequisites	P1 : Dynamics (67210) OR Dynamics (67221) OR Dynamics (61211)

Course Contents

Fluid properties, fluid statics, kinematics of fluid flow, Eulers and Bernoullis equations, control volumes and continuity principles, energy conservation principles, ideal incompressible flow, impulse-momentum principles, real fluid flow, similitude and dimensional analysis. Steady state flow in pipes, types of flow, viscous flow and friction factor.

	Intended Learning Outcomes (ILO's)	Student Outcomes (SO's)	Contribution
1	Ability to define selected fluid properties and to calculate pressure and hydrostatic forces	A	30 %
2	Ability to apply principles of continuity, momentum and energy to ideal fluids in motion	E	30 %
3	Ability to calculate resistance to flow and to apply the principles of work and energy to conduit flow	E	30 %
4	Ability to apply principle of dimensional analyses to derive relations between dependent and independent fluid variables	K	10 %

Textbook and/ or Refrences

Engineering Fluid Mechanics. Crowe, Elger, Williams, and Roberson. 9th Edition. 2010. John Wiley &Sons, Inc.

Assessment Criteria	Percent (%)
First Exam	20 %
Second Exam	20 %
Homeworks	10 %
Final Exam	50 %

Course Plan

Week	Topic
1	Introduction
2	Properties of Fluids
3, 4 &5	Fluid Statics
6	Flowing Fluids and Pressure Variation
6	First hour exam
7 &8	Control Volume Approach and Continuity Equation
9	Momentum Equation
10-11	Energy Equation
12	Second hour exam
12-13	Dimensional Analysis
14 &15	Surface resistance