**MECH 360: Fluid Mechanics (3 credits)**

Starting with an overview of fluid mechanics applications, then the fundamental fluids and flows properties are introduced. Fluid statics including pressure measurement devices are discussed. The Eulerian and Lagrangian approaches are presented along with some real-life applications. Integral formulation of fluid flow equations is discussed. Venturi meter and orifice meter are discussed as an application to the Bernoulli equation. (Prerequisite:  MATH 252)

**Course Learning Outcomes:**

By the end of the course, students will be able to:

A1. Demonstrate advanced knowledge and understanding of the principles of fluid

mechanics for analysis and design in a given engineering system.

B1. Compute the pressure and hydrostatic pressure force at various locations in a fluid.

B2. Apply the Bernoulli, continuity, and energy equations to solve fluid flow problems and to present data or governing equations in non-dimensional form.

B3. Analyze different fluid flow models using finite control volume and differential analysis

Approaches.

B4: Work effectively as a team member/leader to complete a predefined fluid mechanics project.

**Course Learning Materials:**

* Y. Cengel, J. Cimbala, Fluid Mechanics: Fundamentals and Applications, 3rd edition, McGraw-Hill; 2014.
* Munson, Young and Okiishi's Fundamentals of Fluid Mechanics, 9th Edition, International Adaptation
* Introduction to Fluid Mechanics, Pritchard, Fox and McDonald, John Wiley & Sons, current edition.

**Course Content:**

1. Introduction and basic concepts.
2. Bernoulli and energy equations.
3. Momentum analysis of flow systems.
4. Dimensional analysis and modelling.
5. Pressure and fluid statics.
6. Internal flow.