

Course Number	MEng 2082
Course Title	Fluid Mechanics
Degree Program	B.Sc. in Industrial Engineering

Course Description

Introduction to Fluid Mechanics; Hydrostatics pressure in Fluids; Flow Classification; Properties of flows; Viscous fluid flows; Turbulent flow in pipes.

Course Outline:

- 1. Introduction to fluids:** Definition; Properties of fluids; Unit conversion Factors.
- 2. Fluid Statics:** Hydrostatics pressure in Fluids; Pressure measurements; Manometers; Hydrostatics force on different surfaces; Buoyancy; Flotation and stability; Pressure distribution in rigid body motion.
- 3. Dimensional analysis and similitude;** model studies for different flows and at different conditions
- 4. Basic Equation of Fluid Flow and Their Application:** Flow classification; Properties of flows; Reynold's transport theorem; Continuity equations and their applications; The Bernoulli equation and its applications (in venture, orifice, nozzle); Moment equation and its applications, Angular momentum equation and its applications in Turbo Machinery.
- 5. Viscous Fluid Flow:** Laminar and turbulent flows; Flow in circular pipes.

Pre-requisites	Applied Mathematics III
Semester	Year 2, Semester II
Status of Course	Compulsory
Teaching & Learning Methods	Lectures supported by tutorials, laboratory Exercise and demonstration, Assignments. Assignments 10%,

Assessment/Evaluation & Grading System

Tests 20%

Quiz 10%,

Laboratory report 10 %

Final Examination 50%.

Attendance Requirements

Minimum of 85% attendance during lecture hours; and 100% attendance during practical work sessions, except for some unprecedented mishaps.