ME 362 – Hydraulics

Hour: Lecture: 2 Hrs. Tutorial: 2 Hrs. Credit: 3.
Coordinator: Mohamed Elsayed

Text Book:

- Munson, Young and Okiishi "Fundamentals of Fluid Mechanics ", Wiley, 1998, 3rd Edition.

Reference Books:

- Aldor C. Peterson, "Applied Mechanics: Fluids", 5th edition, 1985.
- White, "Fluid Mechanics", McGraw-Hill, 1994, 3rd edition
- Tyler G. Hicks, and T. W. Edwards, "Pumps Applications Engineering", McGraw-Hill, 1980, 4th edition.

Specific course information

a. Introduction - Physical properties of fluids – Fluid statics – Forces on submerged surfaces and buoyancy – Introduction to fluids kinematics – Dynamics of incompressible flow – Flow and velocity measurement – Similitude and dimensional analysis – Flow through pipes – Pumps (Types and performance)
b. Prerequisite: BA 114
c. Designation: Required

Specific goals for the course:

- An ability to apply knowledge of mathematics, science, and engineering.
- Design and conduct experiments, and collect, analyze and interpret data.
- Recognize the need for and demonstrate ability to engage in lifelong learning.
- Ability to visualize the impact of the Mechanical technological development on the environment

Course instruction outcomes:

- The students will be provided with the fundamental knowledge of incompressible flow, and easily understanding the basic principle of hydrostatics and hydrodynamics

Student outcomes:

A, B, I

Topics Covered:

- Introduction

- Physical properties of fluids
- Fluid statics
- Forces on submerged surfaces and buoyancy
- Introduction to fluids kinematics
- Dynamics of incompressible flow
- Flow Measurements
- Velocity measurement
- Similitude and dimensional analysis
- Flow through pipes
- Pumps (Types)
- Pumps (Performance)

Course / credit hours	Math & Basic Sciences	Engineering Topics	General Education
Hydraulics(ME362)/3		3	