ChE 320 - Fluid Mechanics Lab

Code and Name: ChE 320, Fluid Mechanics Lab
Credit Hours: 1 (Lecture: 0, Tutorial: 0, Lab 2)

Textbook: Fluid Mechanics Lab Manual, Al-Imam Muhammad Ibn Saud Islamic University
Other References: None

Course Description:

Introduction lay out of the Fluid laboratory, Safety regulations, Flow Measurements, Laminar and turbulent Flow, Flowing Fluids and Pressure Variation, Flow in Conduits, Cavitation.

Pre-requisites: CHE 223: Fluid Mechanics
Co-requisites: None

Course Learning Outcomes:

With relation to ABET Student Outcomes (SOs: 1-7)

1. Recognize basic concepts of fluid mechanics such as Euler equation, Bernoulli equation.. (1)
2. Identify the properties of fluid mechanics and head loss using Moody diagram and obtain the data from property tables. (1)
3. Calculate head loss, use energy equation for pipe systems (1)
4. Analyze pipe systems compare number of methods to calculate flow rate. (1)
5. Work in group and individually with good rapport with the members of the team. (5)
6. Use word and Excel programs to prepare reports. (6)
7. Write effectively a technical report. (3)
8. Conduct experiments (6)

Topics to be covered:

- Introduction / lay out of the Fluid laboratory/ Safety regulations
- Reynolds Dye Experiment
- Flowmeter Experiment
- Friction in Pipes
- Friction in Fittings
- Performance of Centrifugal Pumps – Pumps in Series/Parallel
- Cavitations

Grading Policy:

The grading for the course are 60% coursework and 40% Final Exam. The course work consists of lab reports which account for 30%. It also includes quizzes, homework, for 20% and 10% for participations.