Alexandria University
Faculty of Engineering
Mechanical Eng. Department
Fluid Machinery (Electromechanics)

Fluid machinery lab report guidelines

1. LAB (1): COMPARISON BETWEEN PDP & DHP

Requirements:

- Discuss the difference between positive displacement pumps and dynamic head pumps regarding the following:
  - Applications
  - Liquids used
  - Pressure
  - Flow rate
  - Use of relief valve
  - Flow control techniques
  - Check valves at suction side
  - Use of filter
  - Reversing rotating direction effect
  - Examples for each type

2. LAB (2): CENTRIFUGAL PUMP PERFORMANCE

Requirements:

- Describe the objectives from the experiment and its procedure in your own manner
- Using readings from the lab draw the H-Q curve of the pump showing all the calculations performed
- Deduce comments on the results

3. LAB (3): CALIBRATION and SIMILARITY of CENTRIFUGAL PUMP

Requirements:

- Describe the objectives from the experiment and its procedure in your own manner
- Using the given data to draw the following:
  - H-Q curve for N1 and N2 (Actual readings)
  - Efficiency curve for N1 and N2 (Actual readings)
  - Shaft power curve for N1 and N2 (Actual readings)
  - H-Q curve for N2 theoretical vs actual readings where theoretical data of N2 calculated using similarity rules taking N1 readings as reference
  - Efficiency curve for N2 theoretical vs actual
  - Shaft Power curve for N2 theoretical vs actual
- All calculations performed are to be shown in the report
- Deduce comments on the results

4. LAB (4) : VORTEXING / SWIRL AT INTAKE

Requirements:

- Discuss the following:
  - Vortexing phenomenon
  - Reasons for Vortex formation
  - Vortexing harms
  - Parameters that govern the Vortex formation
  - Precaution methods
- Discuss in another report all design parameters regarding suction piping

5. LAB (5) : SERIES AND PARALLEL PUMP CONNECTION

Requirements:

- Describe the objectives from the experiment and its procedure in your own manner
- Using readings from the lab draw the following:
  - H-Q curve for a single pump vs 2 parallel pumps
  - H-Q curve for a single pump vs 2 series pumps
  - H-Q curve of 2 series pumps (Actual) vs calculated.
  - H-Q curve of 2 parallel pumps (Actual) vs calculated.
- Deduce comments on the results

General notes:

- Copied reports will get zero marks
- All students can be asked in any lab report whether they performed its calculations or not