

**ME 4232: Fluid Power Control Lab**  
**University of Minnesota**  
**Prof. Perry Y. Li**

**Lab 14: Integrated lab (Hydraulic test bench)**

## **Objective**

This is last lab in which you will use the hydraulic test bench. It will be open ended in the sense that it is up to you to design the experiment. It is also supposed to be integrative in that you will utilize your knowledge about all the hydraulic components you have come across till now to construct useful / interesting circuits.

## **Pre-lab – Due as a hardcopy at the beginning of lab**

Develop a list of at least five interesting problems you would like to investigate by designing your own lab experiment. Describe the problem, your hypothesis, and a basic testing procedure.

## **Procedure**

- In your lab group, discuss the problems you developed in your prelab assignment and select one that you wish to pursue. The experiment should be centered on one or more hydraulic components you have studied in the past. *(Bonus points for creativity!!)*
- Write the motivation for your experiment, present your hypothesis, and develop a detailed test procedure to experimentally test your hypothesis.
- Discuss with your TA about the technical merits and safety aspects of your experiment
- Conduct the experiment and check if the data validates your hypothesis.
- Iterate the design / experiments if necessary

## **Report**

Your report should include the following

- A detailed description of the experiment you are proposing which includes the problem statement, motivations, hypothesis, and your specific testing procedure.
- Document the experimental results obtained and any calculations you performed
- If the experimental results do not support the hypothesis, explain why?