

**Industrial Fluid Power**  
**MECH-8290-37**  
**Term Project**

Consider the following Circuit diagram for a clamp/drill application, the system requirements are:

Drill Speed: 500 mm/min,

Drill Thrust force: 1500 N,

Drill Stroke: 300 mm,

Workpiece Thickness: 200 mm,

Workpiece Length: 400 mm,

Workpiece width: 500 mm,

Workpiece material: Carbon Steel (Young's Modulus of Elasticity ( $E$ ) = 203 GPa)

Clamp Stroke: 600 mm,

Clamp Force: 500 N,

- Design a hydraulic system to meet these system requirements, build simulation model in MATLAB/Simscape.
- A common practice in industry is to use the same parts to reduce inventory, in this design is it possible to have the same exact cylinder design/specs used for both Drill and Clamp functions?, if not, What circuit modification is needed to allow for such a requirement?

Prepare A report outlining the design process, and a SIMSCAPE simulation model. Simulation model and report files are to be uploaded to BB. No later than 11:59 PM on the project evaluation day.

