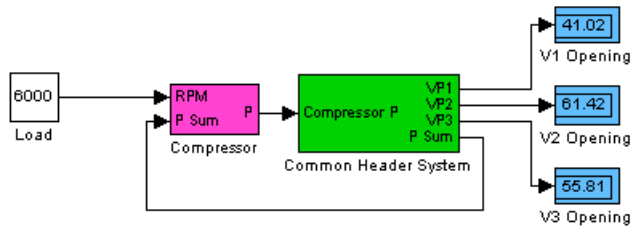


# Term Project for CBE493

(Due by 2011.05.12)

Consider the following utility supplying system.



(The simulink model file can be downloaded from the class web site.)

The compressor is supplying air to three downstream plants and the requirement of air for each plant is changing with time. The plants and the requirement changes with time are pre-programmed in the common header system. A control system for the given system will be designed to satisfy the following objectives.

1. The compressor should supply enough air to downstream plants except the emergency.
2. Minimize the load of the compressor using valve position control scheme if possible.
3. The compressor rpm should be maintained above 3500rpm for safety reason.
4. The maximum opening of the control valve is around 90%.

Students should design the control system, describe your design, present the tuning parameters of the control system you design, and the best responses you attain with the discussion on the results. Students are required use at least one different scenario of your own in requirement changes of the downstream plants.