HW1 Laboratory Mapping Assignment

CHEMICAL AND FUELS ENGINEERING 4903

Fall Semester 2017

First Assignment

Submit your work on Canvas

Draw a floor plan of 3000 level, in the Chemical and Fuels Engineering Laboratory. Include principal pieces of process equipment and the location of all safety equipment. Confine your plans (sketches) to areas used in the senior project laboratory course; do not consider graduate research offices or research laboratories.

Additional Notes:

(1) Your sketches should be included in your laboratory notebook as well as submitted to us.

(2) Though not necessarily made to scale, your sketches and captions should be prepared with care and neatness.

(3) As with conventional plans and maps, north should be labeled at the top of each sheet.

(4) Safety equipment which must be identified includes:

- (a) Fire extinguishers
- (b) Fire alarms
- (c) Fire blankets
- (d) Safety showers*
- (e) Eye wash fountains
- (f) First-Aid kits

***Do not test-pull a safety shower chain**; the safety showers will not shut off until an embarrassing amount of water has been discharged. Operate the safety showers only in the case of a real emergency.

(5) The principal pieces of laboratory process equipment include the following:

- (a) Long-tube vertical evaporator
- (b) Bubble-plate distillation column
- (c) Extruder
- (d) Gas absorber columns
- (e) Liquid-liquid extraction columns
- (f) High pressure glass lined reactor
- (g) Vacuum tray drier

(h) Spray drier

(i) Fluidized bed apparatus

(j) Pressure/Flow rate Cart

(k) Double-pipe heat exchanger

(l) Shell-and-tube heat exchanger

(m) Gas flow circuit

(n) Liquid flow circuit

(o) Gas Chromatograph

(p) CSTR/Tubular reactor

(q) pH Control System

(r) Multivariable control system

(s) Catalytic Reactor

(t) Fermentor/Bioreactor

(u) Air Dehumidifier

(v) Heat Control Experiment

(w) Liquid Level Flow Control (Valtec)
(x) Laser Cutter
(y) 3D printer
(z) Other major equipment not listed above.

(6) On the appropriate floor plan, show the location of the laboratory's barometer.

Submit your assignment in the form of a memorandum to the instructors. Your written responses to this assignment will be graded, and the grade will be incorporated into your overall class grade.