CH 4250: Process Engineering

Assignment 4

Name: _____ Roll No: _____

You have previously, in Assignment 3, developed a flowsheet in Aspen Plus to simulate a process for the production of cyclohexane via benzene hydrogenation.

1. Based on the equipment sizes you have calculated previously, estimate the total capital cost for all the major equipment.

Equipment	Size	Cost ($)
Total		

2. Also, estimate the annual operating cost for running the plant. Assume that the cost of heating is $(30 + a+b+c) / KBTU and cost of cooling is $(19 –a+b-c) /KBTU where **abc is the last 3 digits of your roll number**.

Item	Amount per year (BTU / yr)	Cost per year ($ / yr)
Heating		
Cooling		
Total		

3. If the design specifications of the distillation column is relaxed to allow any number of stages, can the process design be modified to reduce the capital cost significantly? What is the impact of this change on operating cost? Other specs should remain the same.

Item	Old design	New design
Capital cost		
Operating cost		

Deliverables (DUE DATE: 20 Feb 2022, 11:00pm)

1. Two page report in pdf format
2. Aspen Plus file (named as per your Roll Number)