Course Type	Course Code	Name of the Course	L	T	P	Credits
DP	CHC308	**Chemical Process Equipment Design Lab**	0	0	3	3

Course Objective
The course is aimed to impart broad understanding of the chemical process equipment design aspects through hands-on training and perform design calculations of chemical equipment like, Heat exchanger, distillation column, evaporator, Pump, etc. using manual calculations and computer programming/standard computer software like ASPEN/CHEMCAD.
Learning Outcomes
Students would learn how to perform design calculations for the design of different process equipment using ASPEN or similar computer programming environment. Students would also familiarize with the basic Standard equipment symbols and Standard instrumentation symbols used in chemical process industry.

Unit No.	List of Experiments
1	Familiarizing with various drawing symbols (used in process flow diagrams (PFDs) and piping and instrumentation diagrams (P&IDs) of the chemical industry) and user Interface of Aspen Plus/computer programming software.
2	Design of pump (For pump operating between two reservoirs find pump power required, NPSHa)
3	Design of compressor (To find network required)
4	Shell and tube heat exchanger shortcut and detailed design (with baffle spacing, tube layout, number of tubes, pitch, and shell diameter etc.).
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6	
7	Kettle reboiler design (To obtain T-Q curve and Sensitivity Analysis by varying water inlet flow rate and temperature to study the effect in outlet temperature).
8	Distillation column shortcut and rigorous design (To find minimum no. of stages, total no. of stages, feed location, minimum reflux ratio, interactive sizing design of trays with hydraulics plot and troubleshooting to optimize column diameter).
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