

Course Code	CP409			
Course Title	Advanced Process Engineering Design Project			
No. of Credits	4			
Pre-requisites	CP408			
Compulsory/Optional	Compulsory			
Aim(s): To develop skills to execute detailed designs of process equipment for industry.				
Intended Learning Outcomes:				
On successful completion of the course, the students should be able to				
ILO1: Design process equipment using mathematics, basic sciences and engineering principles				
ILO2: Create engineering drawings (elevations, cross sections, P&ID, etc) and specification sheets				
ILO3: Estimate investment and operational costs.				
ILO4: Select/Design auxiliary equipment.				
ILO5: Assess process safety aspects.				
Topics	Time Allocation/Hours			
	L	T	P	A
<ul style="list-style-type: none"> Process equipment design Equipment selection and sizing. 			26	
<ul style="list-style-type: none"> Structural design Material selection, Shell design and Support designs. 			16	
<ul style="list-style-type: none"> Piping and Instrumentation Pipe sizing, instrumentation and control system design; Development of piping and instrumentation diagrams (P&ID). 	04		12	
<ul style="list-style-type: none"> Specifications sheets Preparation of specifications sheets. 			04	
<ul style="list-style-type: none"> Engineering Drawings Presentation of design information using engineering drawings. 	08		12	
<ul style="list-style-type: none"> Process Safety HAZOP analysis of the designed equipment 			04	
<ul style="list-style-type: none"> Costing Capital and operational costs. 	02		06	
<ul style="list-style-type: none"> Selection/Design of auxiliary equipment Conveyors, pumps, blowers, heat exchangers, process vessels, etc. 			12	
Total equivalent hours	14		46	
Recommended Texts:				
<ul style="list-style-type: none"> Sinnott, R. K., Coulson and Richardson's Chemical Engineering Design, (3 Ed), Butterworth-Heinemann, 1999. Green, D. W., Perry, R. H., Perry's Chemical Engineers' Handbook, (8 Ed), McGraw-Hill, 2007. Seader, J. D., Henley, E. J., Roper, D. K., Separation Process Principles: Chemical and Biochemical Operations, (3 Ed), John Wiley & Sons, 2013. Turton, R., Bailie, R. C., Whiting, W. B., Shaeiwitz, J. A., Analysis, Synthesis, and Design of Chemical Processes, (3 Ed), Prentice Hall, 2009. 				
Assessment	Percentage Mark			
In-course				100

Progress Evaluation	10	
Presentation and viva-voce examination	50	
Report	40	
End-semester		