

Course code	Course Name	L-T-P-Credits	Year of Introduction
CH405	CHEMICAL ENGINEERING DESIGN II	3-0-0-3	2016
Prerequisite : CH312 Chemical engineering design - I			
Course Objectives			
<ul style="list-style-type: none"> To impart the basic concepts of process design of evaporators, distillation, absorption and stripping columns, extraction columns, dryers and cooling towers. 			
Syllabus			
<p>Process design and detailed drawing of: Evaporators- Standard short tube, Standard long tube and forced circulation evaporators. Multiple effect evaporators. Process design and drawing of Cooling Towers, Rotary Dryers</p> <p>Process design of steady state isothermal binary component distillation columns. Detailed drawing of distillation column and its accessories. Process design of steady state isothermal absorption and stripping column-detailed drawing. Process design and drawing of sieve tray single solvent extraction columns</p>			
Expected outcome			
<p>At the end of the course, students will be able to</p> <ol style="list-style-type: none"> Select and design suitable equipment for the given operation. Design evaporators and distillation columns. 			
Text Books:			
<ol style="list-style-type: none"> R.E.Treybal, Mass Transfer Operations, McGraw Hill. D.Q. Kern, Process Heat Transfer, Tata McGraw Hill. 			
References:			
<ol style="list-style-type: none"> B.C Bhattacharya, Introduction to Chemical Equipment Design, CBS Publishers & Distributors, New Delhi. Badger & Bancharo, Introduction to Chemical Engineering, McGraw Hill E. Ludwig, Applied Process Design for Chemical & Petrochemical Plants, Vol I, II, II, Gulf Publication, London. IS Codes. J.M.Coulson & J.F.Richardson, Chemical Engineering, Vol.6, 3rd Edn, Butterworth-Heinemann, (Indian print) M.V Joshi & Mahajan V.V., Process Equipment Design, 3rd Edn, Mac-Milan & Co. India. McCabe W.L., Smith J.C., & Harriot P., Unit Operations In Chemical Engineering, McGraw Hill. Perry. R.H & Green.D.W., Chemical Engineers Handbook, 7th Edn, McGraw hill. Rase & Barrow, Project Engineering of Process Plants, John Wiley 			
Module	Contents	Hours	Sem. Exam Marks
I	Process design and detailed drawing of: Evaporators- Standard short tube, Standard long tube and forced circulation evaporators. Multiple effect evaporators. Process design and drawing of Cooling Towers, Rotary Dryers	21	50%
FIRST INTERNAL EXAMINATION			
II	Process design of steady state isothermal binary component distillation columns. Detailed drawing of distillation column	21	50%

	and its accessories. Process design of steady state isothermal absorption and stripping column-detailed drawing. Process design and drawing of sieve tray single solvent extraction columns		
SECOND INTERNAL EXAMINATION			
END SEMESTER EXAMINATION			

Question paper pattern

Maximum marks : 100

Exam duration : 3 hours

There shall be 3 questions uniformly covering modules I & II each carrying 50 marks of which the student has to answer any 2 questions. At the most 4 subdivisions can be there in one main question with a total of 50 marks for all the subdivisions put together.

(2 x50= 100 Marks)

