GUJARAT TECHNOLOGICAL UNIVERSITY
B.E. SEMESTER : VIII
CHEMICAL ENGINEERING

Subject Name: **MULTI COMPONENT DISTILLATION**

Sr. No.	Course Contents	Total Hrs
1.	SELECTION OF KEY COMPONENT: Light and heavy key component, split key and adjacent key, distribution of key and non key components	**03**
2.	SEQUENCING OF DISTILLATION COLUMN: Concept, selection criteria with industrial examples	**6**
3.	SELECTION OF OPERATING PRESSURE: Determination of operating pressure for the various industrial distillation columns, criteria for vacuum distillation, PROS & CONS of vacuum distillation	**3**
4.	METHODS FOR FINDING THEORETICAL STAGES : Short cut methods: Fenskey-Underwood-Gilliland's method, Rigorous methods: Lewis-Metheson method, Theile-Geddes method,Equation tearing procedures using tridiagonal matrix algorithum	**30**
5.	AZEOTROPIC AND EXTRACTIVE DISTILLATION : Concept and working principle, industrial examples, determination of number of theoretical stages for azeotropic and extractive distillation, advantage and disadvantage over each other.	**12**
6.	TOWER DIAMETER AND PRESSURE DROP: Criteria of selection between tray tower and packed tower, among various type of packings, among various types of trays, determination of tower diameter and pressure drop.	**6**
7.	MULTICOMPONENT BATCH DISTILLATION: Design of multicomponent batch distillation with and without rectification.	**6**
8.	ENERGY SAVING IN DISTILLATION : By Heat integation, advanced process control, thermally coupled distillation column, use of heat pumps.	**6**

Text Book:

1. Introduction to Process Engineering & Design by S.B.Thakore & B.I.Bhatt. Tata McGraw-Hill, 2007

Reference books:

1. Distillation dynamics and control by P.B.Despande,Arnold USA 1985
2. Perry's chemical engineers handbook, 7th edition, McGraw-Hill, USA,2000. Distillation design by H.Z.Kister, , McGraw-Hill, USA,1992.