CH306 MASS TRANSFER OPERATIONS – II
Credits: 5 (L = 4, P = 2)
(Pre-requisite: None)

Course Details:

Liquid-liquid extraction:
Phase equilibriums & solvent selection. Theoretical stages; single stage, cross-current and counter-current extraction; calculations with and without reflux for immiscible and partly miscible systems, packed, plate and other contacting equipments and their designs, industrial applications.

Leaching:
Single multistage leaching shanks systems.

Adsorption:
Types of adsorption, adsorption isothermal, stage wise and continuous adsorption. rate of adsorption & fixed beds, fluidized, adsorbere ion-exchange

Crystallization:
Mires theory; yield of crystallization; types of equipment; fractional crystallization; solubility and phase diagrams; nucleation and crystal growth; industrial applications.

Humidification:
Psychometric chart and its applications; dew-point, adiabatic saturation temperature and wet-bulb temperature; design of pray chamber; design of humidifier and dehumidifier; cooling tower design consideration.

Drying:
General, mechanism of drying, constant and fall in frate period. Critical and Equilibrium moisture contents. Equipments - Batch Dryers, Continuous dryers. Design methods. Rotary dryers, Agitated dryers, Fluidized bed dryer.

Novel separation techniques:
Membrane separations; super critical extraction; molecular sieve.

Reference Books:

R E Treybal:
Mc Graw Hill
Mass Transfer Operations

McCabe & Smith:
Mc Graw Hill
Unit Operations in Chemical Engineering

Geankopils C.:
PHI
Transport Processes & Unit Operations