SARDAR PATEL UNIVERSITY
Programme & Subject: M.Sc (Industrial Chemistry)
Semester: II
Syllabus with Effect from: June - 2015

Paper Code: PS02CICH09	**Total Credit: 4**
Title Of Paper: Heat Transfer Operations and Stoichiometry	

Unit	Description in Detail	Weightage (%)
I	Modes of heat transfer, Fourierslaw,Three Dimensional heat conduction equation in rectangular and cylindrical co-ordinates, Effect of variable thermal conductivity, Heat transfer from extended surfaces.Newtons Law of cooling, Calculations for free and forced convection Stefan Boltzman law and Kirchoffslaw,Absorption, Transmission, Reflection and Emission of radiation, Radiation Shields.	25%
II	Heat transfer Co-efficients, effect of scale formation,Design of Heat transfer equipments, LMTD correction factors, Effectiveness and number of transfer units for heat exchangers, Solar thermal collectors	25%
III	Mass balance calculationfor processes with and without chemical reactions,recylcle& purge operations	25%
IV	Energy balance calculation for processes with and without chemical reactions	25%

Basic Text & Reference Books:-

- Unit Operations of Chemical Engineering, W.Mc.Cabe,J.Smith, Mc.Graw Hill Co 7th edition
- Chemical Engineering, Vol 1 to VI, Coulson &Richardson,Pergamon Press. 4th edition
- Engineering Heat Transfer,C.P.Gupta, R.Prakash, Nomchand& Bros.,Roorkee. 7th edition.
- Process Heat Transfer, D.Q.Kern, Mc.Graw Hill Co.
- Fundamentals of Engg. Heat & Mass Transfer, R. C. Sachieve, Wiley Ltd.