

GUJARAT TECHNOLOGICAL UNIVERSITY
B.E. SEMESTER : VII
CHEMICAL TECHNOLOGY

Subject Name: Basics of Catalysis

Subject Code: 173601

Teaching Scheme				Evaluation Scheme			
Theory	Tutorial	Practical	Total	University Exam(E)	University Exam(P)	Mid Sem Exam(Theory) (M)	Practical (Internal)
3	1	0	4	70	30	30	20

Sr. No	Course contents
1.	Review of chemical kinetics, homogeneous catalysis, acid base catalysis
2.	Enzymatic reaction kinetics & design for enzymatic reaction
3.	Heterogeneous catalysis: reaction rates & selectivity, Fixed bed & fluidized bed catalytic reactors.
4.	Catalyst deactivation with separable kinetics, Reactor Design with & without catalyst deactivation, temperature – time trajectories, effect of deactivation on selectivity, determination of order of deactivation by integral & differential methods. Role of diffusion in catalysis. Selection, preparation, & evaluation of catalysts.
5.	Review of chemical kinetics, homogeneous catalysis, acid base catalysis

Reference Books:

1. Elements of Chemical Reaction Engineering”, H. S. Fogler., PHI, 3rd Ed. 2002.
2. Chemical Reaction Engineering, O. Levenspiel, John Wiley, 3rd Ed. ,1999
3. Introduction of the Principles of Heterogeneous Catalysis, J. M. Thomas & W. J. Thomas, Academic Press, 1967.
4. The Role of Diffusion in Catalysis, C. N. Satterfield & T.K. Sherwood Addison Wesley, 1963.
5. Chemical Kinetics, K. J. Laidler, Oxford, 1967
6. Chemical & Catalytic Chemical Engineering, James J Carberry, General Publishing Company Ltd., 1976