

VEER SURENDRA SAI UNIVERSITY OF TECHNOLOGY, BURLA

LESSON PLAN

Semester: 7th **Subject:** Reaction Kinetics and catalysis(Theory)

Branch: Chemical Engineering

Name of the Faculty Member: Mr. Amit Kumar Behera

Period	Module/Number	Topic to be covered
1	01	Introduction
2	01	Homogeneous Reactions
3	01	Classifications of reactions
4	01	definition of reaction rate
5	01	variables affecting the rate
6	01	Order of reaction and its determination
7	01	Theoretical study of reaction rates-The Arrhenius relationship, Collision theory and activated complex theory, molecularity
8	01	
9	02	Interpretation of kinetic data for batch and flow systems
10	02	integral and differential methods of analysis
11	02	Design of batch, semi-batch and flow (Tubular & Tank) reactors for single ideal reactions, reactions in series and parallel and mixed reactions under isothermal operations
12	02	
13	02	
14	02	
15	02	Design of adiabatic and non-isothermal reactors
16	02	
17	03	Introduction to enzyme kinetics
18	03	Heterogeneous reactions: examples; classification of catalysts
19	03	
20	03	General procedure for manufacture of catalysts, catalytic promoters and poisons, reactions catalyzed by solid catalysts
21	03	
22	03	
23	03	
24	03	
25	04	Engineering properties of catalysts and their determination
26	04	
27	04	
28	04	
29	04	General mechanism of catalytic reactions
30	04	
31	04	Adsorption isotherms
32	04	
33	04	Transport processes in reactions catalyzed by solids
34	04	
35	04	Design of heterogeneous catalytic reactors
36	04	
37	04	

