

1.	Title of the course	Heterogeneous Reaction Engineering
2.	Course number	CH306L
3.	Structure of credits	2-1-0-3
4.	Offered to	UG
5.	New course/modification to	Modification To CH3202/12
6.	To be offered by	Department of Chemical Engineering
7.	To take effect from	January 2022
8.	Prerequisite	Nil
9.	<b>Course Objective(s):</b> To develop a rate equation and validate the proposed mechanism for heterogeneous reactions. To identify and include appropriate transport limitations into the design and analysis of heterogeneous reactors.	
10.	<b>Course Content:</b> Introduction to catalysis and heterogeneous reactions; Kinetics of heterogeneous catalytic reactions, reaction mechanisms and rate laws; Transport processes in heterogeneous reactions, effectiveness factor; Packed and fluidized bed catalytic reactors; Non-catalytic fluid-fluid and fluid-solid systems; Introduction to biochemical reactions.	
11.	<b>Textbook(s):</b> 1. Fogler S H, <i>Elements of Chemical Reaction Engineering</i> , 4th Edition, Prentice Hall India (2015). 2. Levenspiel O, <i>Chemical Reaction Engineering</i> , 3rd Edition, Wiley India (1999).	
12.	<b>Reference(s):</b> 1. Carberry J J, <i>Chemical and Catalytic Reaction Engineering</i> , 1st Edition, McGraw-Hill (1976). 2. Doraiswamy L K and Uner D, <i>Chemical Reaction Engineering: Beyond the Fundamentals</i> , 1st Edition, CRC Press (2013). 3. Froment G F and Bischoff K B, <i>Chemical Reactor Analysis and Design</i> , 2nd Edition, John Wiley & Sons (1990). 4. Schmidt L D, <i>The Engineering of Chemical Reactions</i> , 2nd Edition, Oxford University Press (2005).	