

1.	Title of the course	Homogeneous Reaction Engineering
2.	Course number	CH301L
3.	Structure of credits	2-1-0-3
4.	Offered to	UG
5.	New course/modification to	Modification To CH3101/12
6.	To be offered by	Department of Chemical Engineering
7.	To take effect from	July 2022
8.	Prerequisite	Nil
9.	Course Objective(s): To determine rate law for a given chemical reaction. To design an ideal reactor using the given rate law for homogeneous reaction(s).	
10.	Course Content: Rate law and stoichiometry; Kinetics of homogeneous reactions; Analysis and interpretation of kinetic data from batch reactors; Ideal reactors: continuous stirred tank reactor (CSTR), plug flow reactor (PFR), analysis and design for single reactions; Series, parallel and multiple reactions in ideal reactors; Temperature and pressure effects; Guidelines for choosing optimum reactor system; Residence time distribution (RTD); Non-ideal reactor models.	
11.	Textbook(s): 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.	Reference(s): 1. Davis M E and Davis R J, <i>Fundamentals of Chemical Reaction Engineering</i> , 1st Edition, McGraw Hill (2003). 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).	