1.	Title of the course	Adsorption Science and Technology
2.	Course number	CH503L
3.	Structure of credits	3-0-0-3
4.	Offered to	PG
5.	New course/modification to	Modification To CH5023/16
6.	To be offered by	Department of Chemical Engineering
7.	To take effect from	July 2022
8.	Prerequisite	CoT
9.	**Course Objective(s):** To identify various mechanisms responsible for adsorptive separation. To design an adsorption process for separation of a binary gas/vapor mixture.	
10.	**Course Content:** Introduction and applications of adsorption in process industry; Adsorption equilibrium and kinetic theories, nature of interactive forces between active surfaces and adsorbates; Synthesis of zeolites, activated carbon and novel porous materials; Adsorbent material characterization, measurement of surface area, pore volume, isotherms and kinetics; Methods of regeneration of adsorbent, temperature swing, pressure swing, chromatographic processes; Design of adsorption processes; Development of adsorbents for CO2 capture.	
11.	**Textbook(s):** 1. Do D D , *Adsorption Analysis: Equilibria and Kinetics*, 1st Edition, Imperial College Press (1998). 2. Ruthven D M, *Principles of Adsorption and Adsorption Processes*, 1st Edition, Wiley Interscience (1984).	
12.	**Reference(s):** 1. Ruthven D M, Farooq S and Knaebel K, *Pressure Swing Adsorption*, 1st Edition, Wiley-VCH (1993). 2. Yang R T, *Adsorbents: Fundamentals and Applications*, 1st Edition, John Wiley and Sons (2003).	