1.	Title of the course	Transport Processes
2.	Course number	CH517L
3.	Status of the course	Core
4.	Structure of credits	3-0-0-3
5.	Offered to	PG
6.	New course/modification to	New
7.	To be offered by	Department of Chemical Engineering
8.	To take effect from	July 2023
9.	Prerequisite	CoT
10.	Whether approved by the Department	Yes
11.	**Course Objective(s):** To develop mathematical approach to modelling and solving phenomenological transport of momentum, heat and mass in various processes. To apply these principles further for multiphysics problems.	
12.	**Course Content:** Transport equations, analytic methods for the solution of flow, heat and mass transfer problems, approximations based on scaling and asymptotic methods, scaling and nondimensionalization, unidirectional flows, lubrication and thin-film theory, creeping flows, linear stability theory, boundary layer theory, convective heat and mass transport at high and low Reynolds numbers, introduction to multi-phase flow, flow through porous media.	
13.	**Textbook(s):** 1. Bird R B, Stewart W E and Lightfoot E N, *Transport Phenomena*, 2nd Edition, Wiley India (2006). 2. Deen W M, *Analysis of Transport Phenomena*, 2nd Edition, Oxford University Press (2011).	
14.	**Reference(s):** 1. Aris R, *Vectors, Tensors and the Basic Equations of Fluid Mechanics*, 1st Edition, Dover Publications Inc (1990). 2. Kays W M and Crawford M E, *Convective Heat and Mass Transfer*, 4th Edition, McGraw Hill Education (2005). 3. Leal L G, *Advanced Transport Phenomena: Fluid Mechanics and Convective Transport Processes*, 1st Edition, Cambridge University Press (2010). 4. Welty J, Wicks C E,Wilson R E and Rorrer G L, *Fundamentals of Momentum, Heat and Mass Transfer*, 5th Edition, Wiley India (2010).	