1.	Title of the course	Process Simulations Laboratory
2.	Course number	CH516M
3.	Status of the course	Core
4.	Structure of credits	0-1-3-3
5.	Offered to	PG
6.	New course/modification to	New
7.	To be offered by	Department of Chemical Engineering
8.	To take effect from	January 2023
9.	Prerequisite	CoT
10.	Whether approved by the Department	Yes
11.	**Course Objective(s):** To illustrate computer simulations for solving momentum, heat and mass transfer equations in various processes. To apply use of process simulators for simple unit operations.	
12.	**Course Content:** Simulation of transport processes: Hagen-Poiseuille flow between parallel plates and in a circular tube, flow past a cylinder in a confined domain, unsteady heat conduction in a slab, double pipe heat exchanger, natural convection, viscous heating, microwave heating, solute diffusion across a porous slab, first order reaction in a tubular flow reactor; Simulation of unit operations by software: mixer, heat exchanger, distillation column, reactors	
13.	**Textbook(s):** 1. Farmer R C, Pike R W, Cheng G C and Chen Y, *Computational Transport Phenomena for Engineering Analyses*, 1st Edition, CRC Press (2018). 2. Jana A K, *Process Simulation and Control Using Aspen*, 2nd Edition, Prentice Hall India Learning Private Limited (2012).	
14.	**Reference(s):** 1. Bird R B, Stewart W E and Lightfoot E N, *Transport Phenomena*, 2nd Edition, Wiley India (2006). 2. Welty J , Wicks C E, Wilson R E and Rorrer G L, *Fundamentals of Momentum, Heat and Mass Transfer*, 5th Edition, Wiley India (2010).	