1.	Title of the course	Fluid and Particle Mechanics
2.	Course number	CH210L
3.	Structure of credits (L-T-P-C)	3-1-0-4
4.	New course/modification to	Modified with CH202L/FLUID AND PARTICLE MECHANICS
5.	To be offered by	Chemical Engineering
6.	Prerequisite	None
7.	**Course Objective(s):** To discuss fundamentals of fluid flow and hydrodynamics in fluid-particle systems through macroscopic and microscopic approaches.	
8.	**Course Content:** Introduction to fluid mechanics; Fluid statics; Integral balances; Inviscid and potential flows; Bernoulli equation; Newtonian and Non-Newtonian fluids; Differential balances: Navier-Stokes equation, laminar flow; Dimensional analysis; Introduction to turbulence; Pipe flows and use of friction factor charts; Flow measurement; Fluid transportation by pumps; Boundary layer theory; Flow past solid bodies; Settling of particles in fluid; Sedimentation; Flow through packed bed; Filtration; Fluidization; Agitation and mixing.	
9.	**Textbook(s):** 1. De Nevers N, Fluid Mechanics for Chemical Engineers, 3rd Edition, Tata McGraw Hill (2011). 2. Cengel Y and Cimbala J, Fluid Mechanics: Fundamentals and Applications, 4th Edition, McGraw Hill Education (2018).	
10.	**Reference(s):** 1. Chhabra R P and Basavraj M G, Coulson and Richardson's Chemical Engineering: Particulate Systems and Particle Technology, Volume 2a, 6th Edition, Butterworth-Heinemann (2019). 2. McCabe W L, Smith J C and Harriot P, Unit Operations of Chemical Engineering, 7th Edition, Tata McGraw Hill (2014). 3. Fox R W, McDonald A T and Mitchell J W, McDonald's Introduction to Fluid Mechanics, 10th Edition, Wiley (2021). 4. Rhodes M, Introduction to Particle Technology, 2nd Edition, Wiley (2008).	