1.	Title of the course	Biological Fluid Mechanics
2.	Course number	CH511L
3.	Structure of credits	3-0-0-3
4.	Offered to	PG
5.	New course/modification to	Modification To CH5031/20
6.	To be offered by	Department of Chemical Engineering
7.	To take effect from	January 2022
8.	Prerequisite	CoT
9.	**Course Objective(s):** To elucidate the role of biofluid dynamics in human body and diagnosing the physiological flow disorders related to cardiovascular and pulmonary systems. To introduce locomotion of living things.	
10.	**Course Content:** Introduction to fluid mechanics, solid mechanics, cardiovascular physiology; Rheology of blood; Vascular mechanics; Rigid tube flow models: blood flow in a channel, pulsatile flow; Flow development in arteries; Flow in collapsible tubes; Flow through curved arteries and bifurcations; Computational fluid dynamic analysis of the human circulation; Flow visualization; Taylor dispersion and gas mixing in the lung; Swimming of micro-organisms; Aquatic animal locomotion at low Reynolds number; Animal flight.	
11.	**Textbook(s):** 1. Chandran K B, Rittgers S E and Yoganathan A P, *Biofluid Mechanics: The Human Circulation*, 2nd Edition, CRC Press (2012). 2. Lighthill M J, *Mathematical biofluiddynamics*, SIAM (1975).	
12.	**Reference(s):** 1. Happel J and Brenner H, *Low Reynolds number hydrodynamics*, McGraw-Hill (1983). 2. Mazumdar J, *Biofluid Mechanics*, 2nd Edition, World Scientific (2016). 3. West J B, *Respiratory Physiology: The Essentials*, 9th Edition, Williams & Wilkins (1985).	