

1.	Title of the course	Process Heat Transfer
2.	Course number	CH2204
3.	Status of the course	Core
4.	Structure of credits	2-1-0-3
5.	Offered to	UG
6.	New course/modification to	New course
7.	To be offered by	Department of Chemical Engineering
8.	To take effect from	January 2021
9.	Prerequisite	Nil
10.	Whether approved by the Department	Yes
11.	Course Objective(s): To provide the principles of conduction, convection and radiation heat transfer for chemical engineering processes. To apply the fundamentals to design heat exchangers.	
12.	Course Content: Heat transfer by conduction: Fourier's law, steady and unsteady state conditions; Thermal losses and insulation; Efficiency of fins; Heat transfer by convection: natural and forced convection, thermal boundary layer, heat transfer coefficient and correlations for Nusselt number; Heat transfer to fluids with phase change: boiling, condensation; Heat transfer by radiation: emissivity, absorptivity, view factor; Design of double pipe, shell and tube heat exchangers; Design of single and multiple effect evaporators.	
13.	Textbook(s): 1. Cengel Y A and Ghajar A J, <i>Heat and Mass Transfer</i> , 5th Edition, Tata McGraw Hill (2015). 2. Holman J P and Bhattacharyya S, <i>Heat Transfer</i> , 10th Edition, Tata McGraw Hill (2017).	
14.	Reference(s): 1. Incropera F P, Dewitt D P, Bergman T L and Lavine A S, <i>Principles of Heat and Mass Transfer</i> , 7th Edition, Wiley India (2013). 2. Kern D Q, <i>Process Heat Transfer</i> , 1st Edition, Tata McGraw Hill (2004). 3. Welty J, Wicks C E, Wilson R E and Rorrer G L, <i>Fundamentals of Momentum, Heat and Mass Transfer</i> , 5th Edition, Wiley India (2010).	