

1.	Title of the course	Chemical Engineering Thermodynamics I
2.	Course number	CH214L
3.	Structure of credits (L-T-P-C)	2-1-0-3
4.	New course/modification to	Modified with CH204L/CHEMICAL ENGINEERING THERMODYNAMICS
5.	To be offered by	Chemical Engineering
6.	Prerequisite	None
7.	Course Objective(s): To apply laws of thermodynamics to various processes. To calculate thermodynamic properties of fluid mixtures.	
8.	Course Content: First Law: energy balance in open and closed systems, steady state and transient processes; Second law and entropy balance; Properties of pure fluids: phase diagrams, equations of state (EoS), generalized correlations, fundamental property relations, Maxwell's equations; Residual properties, thermodynamic property calculations of fluid mixtures; Thermodynamics of fluid flow and devices, power cycles; Introduction to solution thermodynamics, partial molar properties, ideal-gas-state- mixture model.	
9.	Textbook(s): 1. Smith J M, Van Ness H C, Abbott M M, Swihart M and Bhatt B I, Introduction to Chemical Engineering Thermodynamics, 8th Edition, Tata McGraw Hill (2020). 2. Koretsky M D, Engineering and Chemical Thermodynamics, Wiley (2009).	
10.	Reference(s): 1. Elliot J R and Lira C T, Introductory Chemical Engineering Thermodynamics, 2nd Edition, Prentice Hall (2012). 2. Rao Y V C, Chemical Engineering Thermodynamics, Universities Press (1997). 3. Nevers N d, Physical and Chemical Equilibrium for Chemical Engineers, 2nd Edition, Wiley (2012).	