



INDIAN INSTITUTE OF TECHNOLOGY TIRUPATI

भारतीय प्रौद्योगिकी संस्थान तिरुपति

Yerpedu-Venkatagiri Road, Yerpedu Post, Tirupati District, Andhra Pradesh - 517 619

1.	Title of the course	Chemical Engineering Thermodynamics II
2.	Course number	CH208L
3.	Structure of credits (L-T-P-C)	2-1-0-3
4.	New course/modification to	New
5.	To be offered by	Chemical Engineering
6.	Prerequisite	None
7.	Course Objective(s): To develop the thermodynamic framework and apply it for solving problems in phase equilibrium and chemical reaction equilibrium.	
8.	Course Content: Criterion for phase equilibrium, Gibbs' phase rule, chemical potential, fugacity, mixture of ideal gases, ideal and non-ideal solutions, excess properties, activity coefficients, Raoult's law, models for activity coefficients, thermodynamic consistency, Vapor-Liquid Equilibrium (VLE), flash calculations, Liquid-Liquid Equilibrium (LLE); Chemical reaction equilibria; Introduction to Statistical Thermodynamics and Molecular Simulations.	
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, 1st Edition, Universities Press (1997). 3. Sandler S I, Chemical, Biochemical, and Engineering Thermodynamics, 5th Edition, Wiley (2017). 4. Nevers N d, Physical and Chemical Equilibrium for Chemical Engineers, 2nd Edition, Wiley (2012).	