

Dept. of Chemistry, IIT(ISM) Dhanbad
Lecture Plan for Monsoon Semester 2019-20 for B. Tech Common, Physical Chemistry
(CYI 101)

Sr. no.	Topic	Details	Number of Lecture	Total no. of lectures	Learning outcome
1	Phase Rule	Phase, components, degree of freedom, Phase rule	1	3	Basic idea about normal state of matter
		Phase diagram of single component and two component systems	1		Relationship between different states from P/T or T/C diagram
		eutectic point, Lever rule	1		Finding out conc. at a particular T
2	Electrochemistry	Different type of electrode, Electromotive force, Nernst equation, Relationship between thermodynamic properties and EMF of a cell	1	4	Basic idea about electrochemical cells
		Battery	1		Secondary storage cells
		Fuel cell	1		Renewable and environment friendly source of energy
		Corrosion, corrosion control	1		Application in daily life
3	Chemical kinetics	Parallel, opposing and consecutive reaction	1	4	Basic reaction mechanism
		Unimolecular reaction	1		Molecularity
		Lindemann-Hinshelwood approach	1		Breaking down an apparently unimolecular reaction into two elementary steps
		Adsorption Isotherms	1		Gas adsorption by the adsorbent
4	Thermodynamics	Second law of thermodynamics, entropy change accompanying various processes, Third law of thermodynamics	1	2	Continuation from 1 st law of Thermodynamics
		Gibbs Helmholtz equation, Chemical potential	1		Spontaneity of reaction
Total				13	

Books Reference

1. Engineering Chemistry by Shashi Chawla. Danpat Rai & co.
2. Principles of Physical Chemistry by B.R. Puri, L.R. Sharma, M.S. Pathania, Vishal publishing Co.
3. P. Atkins, J. D. Paula. Physical Chemistry, Oxford, 8th Edition, 2010.
4. K. J. Laidler, Chemical Kinetics, Pearson, 3rd Edition, 1987.