

# GUJARAT TECHNOLOGICAL UNIVERSITY

## B.PHARM SEMESTER-II

### PHARMACEUTICAL CHEMISTRY-II (PHYSICAL CHEMISTRY)

Subject Code: 2220002

THEORY (3 Hours /Week; 3 Credits, 45 Hours)

Sr. No.	Course Contents	Hours
1.	<b>The liquid state:</b> Physical properties surface tension, parachor, viscosity, refractive index, optical rotation, dipole moment of chemical constituents.	7
2.	<b>Solutions:</b> Ideal and real solutions, solutions of gases in liquids, colligative properties, partition co-efficient, conductance and its measurement, Debye-Huckel theory.	8
3.	<b>Thermodynamics:</b> Basic principles, First, Second and third laws, Zeroth Law, absolute temperature scale, thermo chemical equations, phase equilibria and phase rule, One and two component systems.	9
4.	<b>Adsorption:</b> Basic principles, Freundlich and Gibbs adsorption isotherms, Langmuir theory of adsorption.	4
5.	<b>Photochemistry:</b> Basic principles, Consequence of light adsorption, Jablonski diagram, Lambert-Beer Law, Quantum efficiency.	6
6.	<b>Chemical kinetics:</b> Zero, first and second orders reactions, complex reaction, theories of reaction kinetics, characteristics of homogeneous and heterogeneous catalysts, acid-base enzyme catalysis.	11

**B.PHARM SEMESTER-II**  
**PHARMACEUTICAL CHEMISTRY-II (PHYSICAL CHEMISTRY)**  
**Subject Code: 22200P2**  
**PRACTICAL (3 Hours / Week; 3 Credits, 45 Hours)**

<b>Sr. No.</b>	<b>Course Contents</b>	<b>Hours</b>
1.	Experiments on surface tension and viscosity, partition coefficient, adsorption, order of reaction (First and Second), refractive index and molar refraction should be covered.	<b>45</b>

**Books Recommended (Latest Editions):**

1. Text book of Physical Chemistry: Samuel Glasstone, Macmillan India Limited, 2<sup>nd</sup> Ed. 1995.
2. Elements of Physical Chemistry; Peter Atkins, Julio de paula, Oxford University Press, 4<sup>th</sup> Ed. 2007.
3. Essentials of Physical Chemistry: Arun Bahl, B.S. Bahl, G.D. Tuli, S Chand & Co Ltd, 26<sup>th</sup> Ed. 2009.
4. Schaum's Outline of Theory and Problems of Physical Chemistry: Clyde R. Metz, Tata McGraw-Hill Publishing Company Ltd., New Delhi. 2<sup>nd</sup> Ed. 2004.
5. Physical Chemistry: Keith J. Laidler, John H. Meiser, CBS Publishers & Distributors, New Delhi. 2<sup>nd</sup> Ed. 2006.