UTKALMANI GOPABANDHU INSTITUTE OF ENGINEERING, ROURKELA

LESSON PLAN

SUBJECT-PHYSICAL CHEMISTRY

PREPARED BY- RAGHUNATH MARANDI

DEPARTMENT OF CHEMICAL ENGINEERING

	Topics covered
WEEK 1	Intermolecular forces in liquid.
	Vapour pressure and its effect on temperature and boiling point.
	Surface tension.
	Viscosity and measurement of viscosity by Ostwald method.
WEEK 2	Viscosity and measurement of viscosity by Ostwald method.
	Refractive index, specific refraction, determination of refractive index
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WEEK 3	Optical activity and measurement of optical activity
	Solution and Types of solutions
	Ways of expressing concentration.
	Solve numerical related to concentration
WEEK 4	The solution of gases in gases
	Henry's law and solve numerical related to it
	Solutions of liquid in liquids.
	Solubility of partially miscible liquids
WEEK 5	Solubility of solid in liquid and equilibrium concept, solubility curve.
	Raoult's Law, ideal solution and explain the lowering of vapour pressure and its measurement.
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	Concept of elevation of boiling point and depression offreezing point
WEEK 6	Concept of elevation of boiling point and depression offreezing point
	Osmosis and osmotic pressure with example
	Function of semi permeable membrane
	Osmotic pressure and isotonic solutions

WEEK 7	Osmotic pressure and isotonic solutions
	The theories of Osmosis
	The theories of Osmosis
	Reverse osmosis
WEEK 8	The laws of osmotic pressure.
	The laws of osmotic pressure.
	Relation between Vapour Pressure & Osmatic Pressure.
	Solve the Simple Problems.
WEEK 9	Solve the Simple Problems.
	Nernst's distribution law
	Nernst's distribution law
	Equilibrium constant from distribution coefficient
WEEK 10	Extraction with a solvent, multiple extraction
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	Concept of liquid-liquid chromatography.
	Applications of distribution law
WEEK 11	Numerical based on distribution law.
	Colloids & types of colloidal systems.
	Characteristics of sols.
	The application of colloids.
WEEK 12	Methods of preparation of sols & purification of sols.
	The optical, kinetic and electrical properties of sols.
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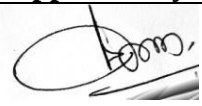
	Emulsion and types of emulsion.
WEEK 13	The role of Emulsifier.
	The preparation of Emulsions and their properties.
	Gel, type of gel, properties and application.
	Adsorption
WEEK 14	Compare absorption and adsorption
	Types of adsorption
	Types of adsorption
	Physical adsorption and Chemisorption
	The application of adsorption
WEEK 15	The application of adsorption
	The Ion- exchange adsorption and discuss its application

BOOKS FOR REFERENCE:

Outline of Chemical Technology by Dryden, East West Press Publication.
Chemical Technology by N Shreeve, Tata Mc Grawhill Publication.

	Prepared by	**Approved by**
Signature		
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