

	NAME OF THE COURSE: APPLIED CHEMISTRY FOR CHEMICAL ENGINEERING III SEMESTER BRANCH-CHEMICAL ENGG							
							HRS	MARKS
COURSE OUTCOME-1	To recognize single component, bicomponent and multicomponent systems.							
LEARNING OUTCOME-1	To apply phase rule.							
CONTENTS	Statement of phase rule, concept phase, component and degree of freedom, application of phase rule to single component. Water system and sulfur system, application of phase rule to two component KI-water and silver lead system, calculation of degrees of freedom for simple systems.							
CONTENTS								
ASSESSMENT METHOD								
LEARNING OUTCOME-2	To apply the conditions favourable for equilibrium to focus the high field of products.							
CONTENTS	Introduction to chemical equilibrium, physical and chemical equilibrium, laws of mass action, concept of equilibrium constant, dynamic nature of chemical equilibrium, factors affecting equilibrium constant, Le charelliers principle.							
ASSESSMENT METHOD								
LEARNING OUTCOME-3	Prepare solutions applying principles of I mil equilibria.							
CONTENTS	Tonic equilibrium, theory of sing electnlytes, ionization of acid and bases, common in effect, debyehuckk theory, definition calculation of PH, Buffer solution, use of indicators, Nearest distribution low : explanation and limitations.							
ASSESSMENT METHOD								
COURSE OUTCOME-2	To interrelate properties and physical behaviour of colloids and solutions.							
LEARNING OUTCOME-1	To prepare list of characteristics of colloids that distinguish it from solutions							
	Colloids, classification, preparation and purification of colloidal solution, properties of colloidal solutions. concept of protective							

LEARNING OUTCOME-2	To prepare standard solutions and explain behavioural changes of solution from pure component.		
CONTENTS	Types of solutions and expression of concentration, solubility of gases in liquids, colligative properties Raoult's law and relative lowering of vapor pressure, boiling point elevation and freezing point depression, osmosis and osmotic pressure, application of colligative properties to determine molecular mass.		
ASSESSMENT METHOD			
COURSE OUTCOME-3	To explain adsorption and its effect on physical and chemical changes in solids.		
LEARNING OUTCOME-1	To differentiate physisorption and chemisorption.		
CONTENTS	Introduction to adsorption, difference between absorption and adsorption, mechanism of adsorption, types of adsorption, physical and chemical adsorption, factors affecting adsorption of gases on solids.		
ASSESSMENT METHOD			
LEARNING OUTCOME-2	To apply principles of adsorption in different conditions.		
CONTENTS	Adsorption isotherms, Freundlich and Langmuir isotherms, application of adsorption, ion-exchange adsorption.		
ASSESSMENT METHOD			
LEARNING OUTCOME-3	Select appropriate catalyst for different conditions		
CONTENTS	Crystal chemistry, crystal geometry, space lattice, lattice sites and coordination number, types of crystal, crystal defects, polymorphism and isomorphism, catalyst activity, selectivity of catalyst, enzyme catalysis.		
ASSESSMENT METHOD			
COURSE OUTCOME-4	To classify different types of hydrocarbons based on their properties and structure.		
LEARNING OUTCOME-	To classify organic compounds		

CONTENTS	Organic chemistry of hydrocarbons, valency of carbon atoms. Unsaturation in carbon compounds, reason for huge number of organic compounds, empirical, molecular and structural formula, isomerism, chain, functional and position isomerism, classification of organic compounds, homologous series, IUPAC nomenclature of organic compounds.		
ASSESSMENT METHOD			
LEARNING OUTCOME-2	To prepare organic compounds		
CONTENTS	Lab properties and uses of Methane, Acetylene, Benzene, Toluene, Diazonium salt and phenol.		
ASSESSMENT METHOD			
COURSE OUTCOME-5	To apply tested organic reactions to prepare new products.		
LEARNING OUTCOME-1	Prepare compounds using famous organic reaction		
CONTENTS	Various functional groups in organic compounds, Types of organic reactions, Grignard reagents and reactions, Friedalcrafts reaction organo metallic compounds, Aldol condensation, Clemmensen reduction and Wurtz-Fittig reaction, Cannizzaro reaction, Tollens reaction, Hofmann Bromide reaction.		
ASSESSMENT METHOD			