

A.T.V.V. Mandal's
B. D. Kale Mahavidyalaya, Ghodegaon
 DEPARTMENT OF CHEMISTRY
Course Outcomes
S.Y.B.Sc.(Chemistry)

Sr.No.	Class	Course	Course Outcome
	S.Y.B.Sc Semester I	CH-211 : Physical & Analytical Chemistry	CO 1: Concept of kinetics , terms used , rate laws , types of order Discuss examples of first order and second order reaction Pseudo molecular reactions Factors affecting on rate of reaction Techniques of measurement of rate of reaction To solve problems CO2: photochemistry Understand difference between thermal and photochemical reactions Understand laws of photochemistry Learn what is quantum yield and it's measurement CO3: Types of photochemical reactions and photophysical process Know about quenching and chemiluminescence Co4: Concept of distribution of solute amongst pair of immiscible solvents Distribution law and it's thermodynamic proof Distribution law and nature of solute in solution state CO5: Application – Solvent extraction Analytical Chemistry Chemical analysis and its applications Sampling Common techniques Instrumental methods and other techniques Choice of method Meaning of error and terms related to expression & estimation of errors Methods of expressing accuracy and precision Classification of errors Significant figures and computations Distribution of errors CO6: Mean and standard deviations Reliability of results Basic principles in qualitative analysis Meaning of common ion effect Role of common ion effect and solubility product

		<p>Different groups for basic radicals CO7: Group reagent and precipitating agents Interfering anions and its removal Separation for basic radicals Method of detection of acidic radicals Classification of compounds with different functional groups CO8: Different tests for detection of elements like C, H, (O), N, S & P. Characteristic tests for different functional groups Different colour tests and the reactions Quantitative analysis of C, H by Liebig's method Kjeldahl's method with example Carius tube method with example Empirical and molecular formula</p>
	CH-212 : Organic & Inorganic Chemistry	<p>CO1: Identify chiral center in the given organic compounds, Erythro, threo, meso, diastereoisomers with suitable examples, R/S configuration in compounds containing two chiral centers, Bayer's strain theory, Heat of combustion and relates stability of cycloalkanes. stability of cyclohexanes, boat and chair configuration of cyclohexane, axial and equatorial bonds in cyclohexane. conformations of mono- & disubstituted cyclohexanes, stability of axial and equatorial conformation of monosubstituted cyclohexanes. CO2: heterocyclic compounds, Huckel rule to predict aromaticity, synthetic route for preparation of various heterocyclic compounds, reactions of heterocyclic compounds. CO3: ore and minerals, calcination and roasting and smelting, different methods for separation of gangue or matrix from metallic CO4: physico-chemical principles involved in electrometallurgy, electrolysis of alumina and its refining, uses of Aluminum and its alloys, purification of bauxite ore. CO5: pyrometallurgy and physico chemical principles, reactions in the blast furnace, properties of pig iron and wrought iron, basic principles of different methods for preparation of steel, merits and demerits of different methods. CO6: corrosion, types of corrosion, Mechanism of corrosion, Factors affecting corrosion, Methods of prevention of metal from corrosion, Meaning of passivity, Different theories of passivity,</p>

			Galvanising, Tinning Electroplating from corrosion
	S.Y.B.Sc Semester II	CH-221 : Physical & Analytical Chemistry	<p>CO1: Free energy concepts, types and its variation, Free energy change for chemical reaction and physical transition, Free energy change for ideal gases, Gibb's Helmholtz equations and its properties & significance van't Hoff reaction isotherm and thermodynamic equilibrium constants, Chemical and physical equilibrium, Clausius – Clapeyron equation and its applications, To solve numericals.</p> <p>CO2: Ideal and non ideal solutions and laws governing these solutions, Interpretation of vapor pressure–composition diagram, Interpretation of temperature composition diagram, Distillation from temperature – composition diagram, Azeotropes, Partially immiscible liquids.</p> <p>CO3: Meaning of equivalent weight, molecular weight, normality, molality, primary and secondary standards, Different way to express concentrations of the solution, Preparation of standard solution, To solve numerical problems, Calibrate various apparatus such as</p>

		<p>burette, pipette, volumetric flask, barrel pipette etc.,Types instrumental and non instrumental analysis</p> <p>CO4: Explain role of indicators,Know mixed and universal indicators.,Know neutralization curves for various acid base titration,Know principle of complexometric precipitation and redox titrations, Know the definitions and difference between iodometry and iodimetry.</p> <p>CO5: To know standardization of sodium thiosulphate and EDTA.</p> <p>Reactions between CuSO_4 and Iodine and liberated I_2 and $\text{Na}_2\text{S}_2\text{O}_3$,Choice of suitable indicator,Estimate copper from CuSO_4 and available chlorine in bleaching powder.</p> <p>Prepare standard silver nitrate solution.</p> <p>Mohr's and Fajan's method.</p> <p>Determine the amount of halides separately and in presence of each other.</p> <p>CO1: Concept of different reagents used in the one type of conversion,Merits & demerits of different reagents,Reagent based mechanisms,Use of different hydrogen donors for hydrogenation</p> <p>CO2: Define and classify heterocyclic compounds,Use Huckel rule to predict aromaticity,Suggest synthetic route for preparation of various heterocyclic compounds,Write and complete various reactions of heterocyclic compounds.</p> <p>CO3: Define carbohydrates.</p> <p>Classify carbohydrates giving suitable examples.</p> <p>Write and complete various reactions of glucose.</p> <p>Explain optical activity in carbohydrates.</p> <p>CO4:Write Fischer projection and perspective formula with glyceraldehydes as reference,Compound,Explain the principle in Killani Fischer synthesis.</p> <p>CO5:Explain stereoisomerism in monosaccharide. Draw structure of some common aldoses and ketoses,Distinguish between diastereomers and epimers.,Write cyclic structure of glucose in Fischer, Haworth and chair form.</p> <p>CO6: To know position of d-block elements in periodic table,To know the general electronic configuration & electronic configuration of elements,To know trends in periodic properties of these elements</p> <p>CO7: To understand M-C bond and to define organometallic compounds, To define</p>
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CH-222 :
Organic &
Inorganic
Chemistry

		CH- 223: Chemistry Practical	<p>organometallic chemistry</p> <p>CO8: Definition of acids and bases, Arrhenius theory, Lowry-Bronsted theory, Lewis concept, Lux-Flood theory, strength of acids and bases</p> <p>CO9: To know toxic chemical in the environment, To know the impact of toxic chemicals on enzyme, To know the biochemical effect of Arsenic, Cd, Pb, Hg.</p> <p>CO1: Verify theoretical principles experimentally</p> <p>CO2: Interpret the experimental data</p> <p>CO3: Improve analytical skills</p> <p>CO5: Correlate the theory and experiments and understand their importance</p>
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