



SMT A.S.M. COLLEGE FOR WOMEN, BALLARI
DEPARTMENT OF CHEMISTRY
TEACHING PLAN

Academic Year: **2022-2023**
Name of the Faculty: **Dr. Bindu P J**

Semester: **THIRD SEMESTER**
Course: **BSc.**

Unit No.	Title of the Chapter & Description	Period/ Month	No. Of Hours Allotted	Hours Taken/ Conducted	Teaching Pedagogy/ Methodology used
UNIT-I	Electromagnetic spectrum, absorption of electromagnetic radiation, Definition and units of frequency, wavelength, wave number, Beer's law, Beer-Lambert law derivation, deviations from Beer's law, limitations, construction of calibration graph (Plot of absorbance versus concentration),	October	08	07	Interactive Board Activity.
UNIT-I & II	Evaluation Procedures- standard addition, Internal standard addition, validation parameters-detection limits, sensitivity, dynamic/linearity range, Instrumentation, single beam and double beam spectrophotometers, quantitative applications of colorimetry (determination of Fe, Mo, Cu, Ti and PO ₄ ³⁻) and numerical problems on application of Beer's law.	November	08	06	Interactive Board Activity.
	Nephelometry and Turbidimetry: Introduction, principle, instrumentations of nephelometry and turbidimetry; effects of concentration, particle size and wavelength on scattering; choice between nephelometry, applications of nephelometry and turbidimetry (determination of SO ₄ ²⁻ and PO ₄ ³⁻).	December	08	08	Interactive Board Activity.
	Chromatography: resins, types with examples- cation exchange and anion exchange resins, mechanism of cation and anion exchange process and applications of ionexchange chromatography (softening of hard water, separation of lanthanides, industrial applications).	January	08	05	Interactive Board Activity.

Signature of the Faculty

Signature of the HOD

Head of the
Department of Chemistry
Smt ASM Degree College for Women
BELLARY

Signature of the Principal
Principal

Smt. Allum Sumangamma Memorial
College for Women, Ballari



SMT A.S.M. COLLEGE FOR WOMEN, BALLARI
DEPARTMENT OF CHEMISTRY
 TEACHING PLAN

Academic Year: **2022-2023**

Semester: **FIFTH SEMESTER (5.2)**

Name of the Faculty: **Dr. Bindu P J**

Course: **BSc.**

Unit No.	Title of the Chapter & Description	Period/ Month	No. Of Hours Allotted	Hours Taken/ Conducted	Teaching Pedagogy/ Methodology used
UNIT-V	Photochemistry: Interaction of radiation with matter, difference between thermal and Photochemical processes, laws of photochemistry Grothus Dropper law, Strak Einstein law. Joblonski diagram depicting various processes occuring in the excited state. Qualitative description of flourescence, phosphoresence, non-radioactive processes (internal conversion, inter system crossing), quantum yield, photosensitized reactions, energy transfer processes (simple examples).	October	08	07	Interactive Board Activity.
UNIT-VI	Physical Properties and Molecular Structure: Optical activity, polarization, (Clausius- Mossotti equation). Orientation of dipoles in an electric field, dipole moment, induced dipole moment, measurement of dipole moment temperature method and refractivity method, dipole moment and structure of molecules, magnetic properties paramagnetism, diamagnetism and ferromagnetism.	November	08	06	Interactive Board Activity.
Unit VII :	VII : Chemistry of Newer Materials Conducting polymers: Introduction, definition and example – polyanaline, polyacetylene, Mechanism of conduction. Qualitative treatment of doping properties, elasticity with high Electrical conductivities. Engineering and biological applications.	December	08	08	Interactive Board Activity.
	Superconductors: Introduction, definition, type 1, type 2 and preparation of high temperature, super conductor. $Y_1Ba_2Cu_3O_{x+d}$. Nanomaterials: Definition, properties, applications, carbon nano tubes, definition, types. Methods of prepration, properties and industrial applications of carbon nanotubes, Nanowires definition, types, production of crystalline nanowires by vapour – liquid – solid. synthesis method, applications of nanowires.	January	08	05	Interactive Board Activity.

Signature of the Faculty

Signature of the HOD

Signature of the Principal

Head of the
Department of Chemistry
Smt ASM Degree College for Womens
BELLARY

Principal
Smt. Allum Sumangalamma Memorial
College for Women, Ballari-583103



SMT A.S.M. COLLEGE FOR WOMEN, BALLARI
DEPARTMENT OF CHEMISTRY
TEACHING PLAN

Academic Year: **2022-2023**


Semester: **SECOND SEMESTER**


Course: **BSc.**

Name of the Faculty: **Dr. Bindu P J**

Unit No.	Title of the Chapter & Description	Period/ Month	No. Of Hours Allotted	Hours Taken/ Conducted	Teaching Pedagogy/ Methodology used
UNIT -I	Bohr's theory, its limitations and atomic spectrum of hydrogen atom. Wave mechanics: de Broglie equation, Heisenberg's Uncertainty Principle and its significance, Schrödinger's wave equation, significance of ψ and ψ^2 . Quantum numbers and their significance. Normalized and orthogonal wave functions. Sign of wave functions. Radial and angular wave functions for hydrogen atom. Radial and angular distribution curves.	01/05/ 2023 TO 01/06/ 2023	07 HOUR	08 HOUR	BLACK BOARD
UNIT -I	Shapes of s, p, d and f orbital. Contour boundary and probability diagrams. Pauli's Exclusion Principle, Hund's rule of maximum multiplicity	02/06/ 2023 TO 02/07/ 2023	07 HOUR	08 HOUR	BLACK BOARD
	Aufbau's principle and its limitations- Electronic configurations of the elements ($Z=1-30$), effective nuclear charge, shielding/screening effect, Slater's rules. Variation of effective nuclear charge in Periodic Table.	03/07/ 2023 TO 22/07/ 2023	05 HOUR	04 HOUR	BLACK BOARD


Signature of the Faculty


Signature of the HOD
Head of the
Department of Chemistry
Smt ASM Degree College for Women
BALLARI


Signature of the Principal
Principal
Smt. Allum Sumangamma Memorial
College for Women, Ballari-583103




SMT A.S.M. COLLEGE FOR WOMEN, BALLARI
DEPARTMENT OF CHEMISTRY
TEACHING PLAN

Academic Year: **2022-2023**
Name of the Faculty: **Dr. Bindu P J**

Semester: **SIXTH SEMESTER (6.2)**
Course: **BSc.**

Unit No.	Title of the Chapter & Description	Period/ Month	No. Of Hours Allotted	Hours Taken/ Conducted	Teaching Pedagogy/ Methodology used
UNIT-I	Cement - Definition & composition of Portland cement, manufacture of Portland cement by Dry process, setting of cement, types of Portland cement & other types of cement. Cement Industries in India. Glass - Definition & composition, physical properties, chemical properties, characteristics, Manufacture of glass by pot furnace method. Types of glasses.	May-JUNE	08 HOUR	07 HOUR	Black board
UNIT-II	Paints: Introduction, requirement of paints, constituents of paints, formation of paints, failure of paints films (reasons), emulsion paints, manufacture of white lead using Dutch process and uses. Pigments: Red pigments, White pigments, Varnishes; Spirit and oil vanishes	JUNE-JULY	08 HOUR	06 HOUR	Black board


Signature of the Faculty


Signature of the HOD
Head of the
Department of Chemistry
Smt ASM Degree College for Women
BELLARY


Signature of the Principal
Principal
Smt. Allum Sumangalamma Memorial
College for Women, Ballari-583103

V.V.SANGHA'S
Smt. A.S.M. COLLEGE FOR WOMEN, BALLARI
DEPARTMENT OF CHEMISTRY
TEACHING PLAN



Academic year: 2022-2023
Course: B.Sc.
Faculty: BASAVARAJ S H

Semester: FIRST

Unit No	Title of the Chapter & Description	Period/ Month	No of hours allotted	Hours taken /Conducted	Teaching pedagogy/ methodology used
II	<u>Unit-II Titrimetric analysis:</u> Basic principle of titrimetric analysis. Classification, Preparation and dilution of reagents/solutions. Normality, Molarity and Mole fraction. Use of $N_1V_1 = N_2V_2$ formula, Preparation of ppm level solutions from source materials (salts), conversion factors	12/10/22 To 01/11/22	3	4	BLACK BOARD AND CHALK
	<u>Acid-base titrimetry:</u> Titration curves for strong acid vs. strong base, weak acid vs strong base and weak base vs. strong acid titrations. Titration curves, Quantitative applications – selecting and standardizing a titrant, inorganic analysis - alkalinity, acidity.	02/11/22 To 15/11/22	2	3	BLACK BOARD AND CHALK
	<u>Complexometric titrimetry:</u> Indicators for EDTA titrations - theory of metal ion indicators, titration methods employing EDTA- direct, back, displacement and indirect determinations, Application-determination of hardness of water	16/11/22 To 29/11/22	2	3	BLACK BOARD AND CHALK
	<u>Redox titrimetry:</u> Balancing redox equations, calculation of the equilibrium constant of redox reactions, titration curves, Theory of redox indicators, calculation of standard potentials using Nernst equation. Applications.	30/11/22 To 13/12/22	2	3	BLACK BOARD AND CHALK
	<u>Precipitation titrimetry:</u> Titration curves, titrants and standards, indicators for precipitation titrations involving silver nitrate-Volhard's and Mohr's methods and their differences	14/12/22 To 27/12/22	2	3	BLACK BOARD AND CHALK
	<u>Gravimetric Analysis:</u> Requisites of precipitation, mechanism of precipitation, Factors influencing precipitation, Co-precipitation, post-precipitation, Advantages of organic reagents over inorganic reagents, reagents used in gravimetry (8-hydroxy quinoline (oxine) and dimethyl glyoxime (DMG)).	28/12/23 To 10/01/23	3	4	BLACK BOARD AND CHALK

FACULTY

HOD

Head of the
Department of Chemistry
Smt ASM Degree College for Womens
BELLARY

Principal
Smt. Allum Sumangalamma Memorial
College, Ballari-583103
Smt. Allum Sumangalamma Memorial
College for Women, Ballari-583103

V.V.SANGHA'S
Smt. A.S.M. COLLEGE FOR WOMEN, BALLARI
DEPARTMENT OF CHEMISTRY
TEACHING PLAN



Academic year: 2022-2023

Semester: Fifth(5.1&5.2)

Course: B.Sc.

Faculty: BASAVARAJ S H

Unit No	Title of the Chapter& Description	Period/Month	No of hours allotted	Hours taken /Conducted	Teaching pedagogy/ methodology used
II	Unit V: Spectroscopy of organic compounds: • Ultraviolet spectroscopy (UV): Principles and measurements, electronic excitation, simple chromophoric groups, conjugated system.	12/10/22 To 17/10/22	02	03	BLACK BOARD AND CHALK
	System of extended conjugation, aromatic systems explanation by taking acetaldehyde and benzaldehyde and acetone and acetophenone.	18/10/22 To 27/10/22	02	03	BLACK BOARD AND CHALK
	• Infrared spectroscopy (IR): Molecular vibrations, principles and measurements, absorption of common functional groups-NH ₂ , NH, -OH, -C=N.	28/10/22 To 07/11/22	02	03	BLACK BOARD AND CHALK
	Absorption of common functional groups C≡N, >C=O, -COOR, finger print region of aromatic compounds.	08/11/22 To 17/11/22	02	03	BLACK BOARD AND CHALK
III	Unit III: Carbohydrates Classification and nomenclature, monosaccharide, mechanism of osazone formation, interconversion of glucose and fructose, ascending and descending of sugar series. Epimerisation, mechanism of conversion of glucose into mannose	18/11/23 To 01/12/23	03	04	BLACK BOARD AND CHALK
	Mannose. Formation of glycosides. Determination of configuration of D (+) glucose and D (-) fructose. Mechanism of mutarotation cyclic structure of D (+) glucose.	02/12/23 To 12/12/23	0PP2	03	BLACK BOARD AND CHALK
	Determination of size of the ring in the monosaccharide (glucose).An introduction to disaccharides (maltose, sucrose and lactose) and polysaccharides (starch and cellulose) without involving structural determinations.	13/12/23 To 26/12/23	03	04	BLACK BOARD AND CHALK

IV	Unit IV: Terpenoids Occurrence, classification and methods of isolation, Isoprene rule and its application. Synthesis and elucidation of structure of citral and α -terpeniol.	27/12/23 To 09/12/23	04	04	BLACK BOARD AND CHALK
	Alkaloids: Classification with examples. Elucidation of structure and synthesis of coniine and nicotine, structure and uses of cocaine and atropine.	10/12/23 To 23/01/23	04	04	BLACK BOARD AND CHALK


FACULTY


HOD

Head of the
Department of Chemistry
Smt ASM Degree College for Womens
BELLARY.


PRINCIPAL
IOAC, U.S. Coordinator
Smt. Alu Sumangamma Memorial
College for Women, Bellary-583103



V.V.SANGHA'S
Smt. A.S.M. COLLEGE FOR WOMEN, BALLARI
DEPARTMENT OF CHEMISTRY
TEACHING PLAN



Academic year: 2022-2023

Course: B.Sc.

Semester: Fourth

Name of the Faculty: BASAVARAJ S H

Unit No	Title of the Chapter & Description	Period/ Month	No of hours allotted	Hours taken / Conducted	Teaching pedagogy/ methodology used
1	Structure and Bonding -I The ionic bond :Structures of ionic solids Radius ratio rules, Calculation of some limiting radius ratio values, Coordination number 3 (planar triangle), Coordination number 4 (tetrahedral and square planar), Coordination number 6 (octahedral), Close packing.	01/05/23 To 11/05/23	3	4	Black board and chalk
	Classification of ionic structures: Ionic compounds of the type AX (ZnS, NaCl, CsCl) Ionic compounds of the type AX ₂ (Calcium fluoride (fluorite) and Rutile structure Layer structures CdI ₂ , Cadmium iodide structure.	12/05/23 To 23/05/23	2	3	Black board and chalk
	Lattice energy and Born-Haber cycle, Derivation of Born-Landé equation and its drawbacks, Kapustinskii equation, solvation energy and solubility of ionic solids, polarizing power and polarizability, Fajan's rules with applications. Numerical problems.	24/05/23 TO 20/06/23	5	8	Black board and chalk
	Covalent bond: Valence bond theory, The Lewis theory, The octet rule, Exceptions to the octet rule, Sidgwick-Powell theory. Valence shell electron pair repulsion (VSEPR) theory, Effect of lone pairs, electronegativity, iso electronic principle, Examples using VSEPR theory: BF ₃ and BF ₄ ⁻ , NH ₃ and NH ₄ ⁺ , H ₂ O, PCl ₅ , ClF ₃ , SF ₄ , I ₃ ⁻ and I ₃ ⁺ , SF ₆ , and IF ₇ . Limitations of VSEPR.	21/06/23 To 11/07/23	4	6	Black board and chalk
4	Chemical Kinetics Differential and integrated form of rate expressions up to second order reactions, Derivation of expression of rate constant of second order reaction (a=b and a ≠ b), Problems on rate constant (a=b).	12/07/23 TO 19/07/23	2	3	Black board and chalk

Methods of determination of order of a reaction, temperature dependence of reaction rates; Arrhenius equation, activation energy, Numerical problems on Arrhenius equation in calculating energy of activation and rate constants.	20/07/2023 TO 27/07/23	2	3	Black board and chalk
Collision theory of reaction rates, Lindeman's mechanism, qualitative treatment of the theory of absolute reaction Rates.	28/07/23 TO 09/08/23	1	2	Black board and chalk
Experimental determination of kinetics of (i) inversion of cane sugar by polarimetric method (ii) spectrophotometric method for the reaction between potassium persulphate and potassium iodide	10/08/23 TO 17/08/23	2	2	Black board and chalk



FACULTY



HOD

Head of the
Department of Chemistry
Smt ASM Degree College for Womens
BELLARY



PRINCIPAL
Principal

Smt. Alum Sumangalamma Memorial
College for Women, Bellari-583103



V.V.SANGHA'S
Smt. A.S.M. COLLEGE FOR WOMEN, BALLARI
DEPARTMENT OF CHEMISTRY
TEACHING PLAN



Academic year: 2022-2023


Course: B.Sc.

Name of the Faculty: BASAVARAJ S H

Semester: SIXTH (6.1)

Unit No	Title of the Chapter & Description	Period/Month	No of hours allotted	Hours taken /Conducted	Teaching pedagogy/ methodology used
3	Unit III: Chromatographic technique				
	Fundamental of chromatography: General description. Definition, terms and parameter used in chromatography, classification of chromatographic methods, criteria for selection of stationary phase, and mobile phase, nature of adsorbents, factors influencing the adsorbents. Nature and type of mobile phases and stationary phases.	01/05/23 To 20/05/23	04	06	Black board and chalk
	Thin-layer chromatography(TLC): Definition, mechanism, efficiency of TLC plates, methodology-selection of stationary phase and mobile phase, preparations of plates. Spotting development, identification and detection reproducibility of Rf values.	21/05/23 TO 03/06/23	02	03	Black board and chalk
	Column chromatography: Introduction, principle and experimental details and applications.	05/06/23 TO 15/06/23	02	03	Black board and chalk
4	Unit VI: Environmental Chemistry				
	Types and sources of air pollution. Determination of particulates, SO _x , NO _x & CO _x	16/06/23 TO 23/06/23	02	03	Black board and chalk
	Water pollution: .Different types of water pollutants. Ground water pollution, surface water pollution and marine water pollution. Impacts of water pollution on environment COD, BOD. Control of water pollution.	24/06/23 TO 08/07/23	02	04	Black board and chalk
	Industrial effluents: their effects & treatment, sewage water treatment. Water and air quality standards (ISI & WHO).	10/07/23 TO 21/07/23	02	03	Black board and chalk
	Plastics: reuse and degradation	22/07/23 TO	02	02	Black board and chalk


FACULTY


HOD

Head of the
Department of Chemistry
Smt ASM Degree College for Womens
BELLARY.


PRINCIPAL
Principal
Smt. Alum Sumangamma Memorial
College for Women, Ballari-583103

College for women, Sultanpur
Smt. Abim Singh
1988

V.V.SANGHA'S
Smt.A.S.M. COLLEGE FOR WOMEN, BALLARI
DEPARTMENT OF : CHEMISTRY
TEACHING PLAN



Academic Year : 2022-23


Semester: I

Course : B.Sc

Name of the Faculty : J.P.GOVIND

UNIT NO	Title of the Chapter & Description	Period/ month	No. of Hours Allotted	Hours Taken / Conducted	Teaching Pedagogy/ Methodology used
1.	<p>Language of analytical chemistry: Definitions of analysis, determination, measurement, techniques and methods. Classification of analytical techniques. Choice of an analytical method - accuracy, precision, sensitivity, selectivity, method validation. Figures of merit of analytical methods and limit of detection (LOD), Limit of quantification (LOQ), linear dynamic range (working range). Errors and treatment of analytical data: Limitations of analytical methods – Errors: Determinate and indeterminate errors, absolute error, relative error, minimization of errors. Statistical treatment of finite samples -mean, median, range, standard deviation and variance. External standard calibration - regression equation (least squares method), correlation coefficient (R²). Numerical problems</p> <p>Basic laboratory practices, calibration of glassware (pipette, burette and volumetric flask), Sampling (solids and liquids), weighing, drying, dissolving, Acid treatment, Rules of work in analytical laboratory, General rule for performing quantitative determinations (volumetric and gravimetric), Safety in Chemical laboratory, Rules of fire prevention and accidents, First aid. Precautions to be taken while handling toxic chemicals, concentrated/fuming acids and organic solvents.</p>	04 Hrs	14 Hrs	18Hrs	Black Board & Chalk


FACULTY


HOD
Head of the
Department of Chemistry
Smt ASM Degree College for Womens.
BALLARI.


PRINCIPAL
PRINCIPAL
Smt. ASM College
For Women, BALLARI.

V.V.SANGHA'S
Smt.A.S.M. COLLEGE FOR WOMEN, BALLARI
DEPARTMENT OF : CHEMISTRY
TEACHING PLAN



Academic Year : 2022-23


Semester: II


Course : B.Sc

Name of the Faculty : J.P.GOVIND

UNIT NO	Title of the Chapter & Description	Period/ month	No. of Hours Allotted	Hours Taken / Conducted	Teaching Pedagogy/ Methodology used
1.	<p><u>Gaseous State</u> Elementary aspects of kinetic theory of gases, Ideal and real gases. Boyle temperature (derivation not required), Molecular velocity, collision frequency, collision diameter, Collision cross section, collision number and mean free path and coefficient of viscosity, calculation of σ and η, variation of viscosity with temperature and pressure. Maxwell's Boltzmann distribution law of molecular velocities (Most probable, average and root mean square velocities). Relation between RMS, average and most probable velocity and average kinetic energies. (Mathematical derivation not required), law of equipartition of energy. Behaviour of real gases: Deviation from ideal gas behaviour. Compressibility factor (Z) and its variation with pressure for different gases. Causes of deviation from ideal behaviour, vander Waals equation of stat (No derivation) and application in explaining real gas behaviour. Critical phenomena - Andrews isotherms of CO₂, critical constants and their calculation from van der Waals equation, Continuity of states, Law of corresponding states. Numerical problems.</p> <p><u>Liquid State</u> Surface Tension: Definition and its determination using stalagmometer, effect of temperature and solute on surface tension Viscosity: Definition, Coefficient of viscosity. Determination of viscosity of a liquid using Oswald viscometer. Effect of temperature, size, weight, shape of molecules and intermolecular forces. Refraction: Specific and molar refraction- definition and advantages. Determination of refractive index by Abbes Refractometer. Additive and constitutive properties. Parachor: Definition, Atomic and structure parachor, Elucidation of structure of benzene and benzoquinone. Viscosity and molecular structure. Molar refraction and chemical constitution. Numerical Problems.</p>	08 Hrs	14 Hrs	20Hrs	Black Board & Chalk


FACULTY


HOD
Head of the
Department of Chemistry
Smt. ASM Degree College for Women
BALLARI


PRINCIPAL
PRINCIPAL
Smt. ASM College
For Women, BALLARI,

V.V.SANGHA'S
Smt.A.S.M. COLLEGE FOR WOMEN, BALLARI
DEPARTMENT OF : CHEMISTRY
TEACHING PLAN



Academic Year : 2022-23


Semester: V

Course : B.Sc

Name of the Faculty : J.P.GOVIND

UNIT NO	Title of the Chapter & Description	Period/ month	No. of Hours Allotted	Hours Taken / Conducted	Teaching Pedagogy/ Methodology used
1.	Electrochemistry Conductance, specific, molar and equivalent and relation between them, Cell constant and determination of equivalent conductance. Variation of equivalent conductance with dilution. Kohlrausch law, ionic conductivity, ionic mobility and relation between them. Applications of conductance measurements i) Conductometric titrations-strong acid and a strong base, weak acid-strong base and mixtures of strong acid and weak acids against strong base ii) Equivalent conductance of weak electrolyte at infinite dilution.	08 Hrs	08 Hrs	10 Hrs	Black Board & Chalk
2.	Catalysis General characteristics of catalytic reactions, Acid-Base catalysis. Kinetics of acid-base catalysed reaction, mechanism of pH dependence of the rate constant of catalysed reaction. Autocatalysis and oscillatory reactions, Belousov-Zhabotinski reaction, a qualitative approach. The Brussellator and Originator models.		08 Hrs	10 Hrs	Black Board & Chalk


FACULTY


HOD
Head of the
Department of Chemistry
Smt ASM Degree College for Womens
BELLARY.


PRINCIPAL
PRINCIPAL
Smt. ASM College
For Women, BALLARI.

V.V.SANGHA'S
Smt.A.S.M. COLLEGE FOR WOMEN, BALLARI
DEPARTMENT OF : CHEMISTRY
TEACHING PLAN



Academic Year : 2022-23


Semester: VI

Course : B.Sc

Name of the Faculty : J.P.GOVIND

UNIT NO	Title of the Chapter & Description	Period/month	No. of Hours Allotted	Hours Taken / Conducted	Teaching Pedagogy/ Methodology used
1.	<p><u>Colligative Properties</u> Colligative Properties- Semi permeable membrane, natural and artificial semi permeable membranes. Examples, preparation of copper ferrocyanide semipermeable membrane. Osmosis, osmotic pressure its determination by Berkley and Harley method. Theory of dilute solutions, laws of Osmotic pressure, molecular mass from osmotic pressure measurements. Isotonic solutions. Relative lowering of vapour pressure. Raoult's Law and it's derivation. Relation between relative lowering of vapour pressure and molecular mass (to be derived). Ostwalds and Walker method of determination of relative lowering of vapour pressure. Elevation of boiling point and its relationship to the lowering of vapour pressure and molar mass (to be derived using Clepeyron – Clausius equation). Ebullioscopic constant kb of the solvent and its relation to the boiling point and enthalpy of vapourisation of the solvent. Determination of molar mass of solute by ebullioscopic method (Landsbergers method).</p>	08 Hrs	08 Hrs	10 Hrs	Black Board & Chalk
2.	<p><u>Electromotive force</u> Electromotive force - Galvanic cells and electrode reaction. Measurement of EMF, Standard cell (Weston). Types of electrodes, sign convention of electrode potential (reduction potential is to be adopted), rules for representation of the cell. Nernst's equation of electrode potential (to be derived) E & E0 of the cell. Calculation of electrode potential, standard electrode potential, reference electrode. (a) Hydrogen electrode (b) Calomel electrode (c) Silver – Silver chloride electrode. Application of EMF measurements (I) Determination of Ph of a solution by using hydrogen electrode (II) Potentiometric titrations (a) Acid – base and (b) Redox titrations. Concentration cells with and without transference, liquid junction potential.</p>	08 Hrs	08 Hrs	10 Hrs	Black Board & Chalk

FACULTY


 Head of the
 Department of Chemistry
 Smt. ASM Degree College for Womens
 BALLARI


 PRINCIPAL
 PRINCIPAL
 Smt. ASM College
 For Women, BALLARI,

V.V.SANGHA'S
Smt. A.S.M. COLLEGE FOR WOMEN, BALLARI
DEPARTMENT OF CHEMISTRY
TEACHING PLAN



Academic year: 2022-2023

Course: B.Sc (NEP)

Name of the Faculty: Smt. Anjana.K

Semester: 2nd

Unit No	Title of the Chapter& Description	Period/Month	No of hours allotted	Hours taken /Conducted	Teaching pdagogy/ methodology used
UNIT I	s-Block Elements: Alkali metals: Comparative study of properties of group IA elements. Physical properties, electronic configuration, atomic radius, softness, density, melting and boiling points, ionisation energy, electronegative character, oxidation state, flame colourisation and its cause. Chemical properties - reactivity of metals, action of a liquid water, hydrogen, halogens, formation of amalgams. Comparative study of properties of compounds of alkali metals such as oxides and peroxides, bicarbonates, hydroxides, carbonates, halides and nitrates.	01/05/23 To 11/05/23	8	10	Blackboard & Chalk
	Alkaline Earth Metals: Comparative study of properties of Group IIA elements, properties, electronic configuration, melting and boiling points, softness, density, ionisation energy, hydration of ions, electropositive character, flame colouration and its causes. Comparative study of the properties of compounds such as oxides, hydroxides, bicarbonates, and carbonates, sulphates and halides (solubility, thermal decomposition, amphoteric and basic nature, reaction with water, formation of more soluble bicarbonates from carbonates, deliquescent property wherever applicable)	12/05/23 To 23/05/23			Blackboard & Chalk

FACULTY
ke
(Smt. Anjana.K)

ke
HOD
Head of the
Department of Chemistry
Smt. ASM College for Womens
BALLARI.

PRINCIPAL
ke
PRINCIPAL
Smt. ASM College,
For Women, BALLARI.

PRINCIPAL
Smt. ASM College,
For Women, BALLARI.

Head of the
Department of Chemistry
Smt. ASM College for Women
BALLARI.

V.V.SANGHA'S
Smt. A.S.M. COLLEGE FOR WOMEN, BALLARI
DEPARTMENT OF CHEMISTRY
TEACHING PLAN



Academic year: 2022-2023

Course: B.Sc (Non-NEP)

Name of the Faculty: Smt. Anjana

Semester: 6th

Unit No	Title of the Chapter& Description	Period/Month	No of hours allotted	Hours taken /Conducted	Teaching pdagogy/ methodology used
UNIT II	Errors and Evaluation :Definition of terms in mean and median. Precision-standard deviation, relative standard deviation. Accuracy – absolute error, relative error. Types of error in experimental data, determinate (systematic) indeterminate (or random) and gross.	01/05/23 To 11/05/23	8	10	Blackboard & Chalk
	Source of errors and their effects upon the analytical results. Methods for reporting analytica data. Statistical evaluation of data. Indeterminate errors. The use of statistics.	12/05/23 To 23/05/23			Blackboard & Chalk
Unit I:	Analytical Chemistry : 08 Hrs Introduction: Role of analytical chemistry. Classification of analytical methods- Classical and instrumental. Types of instruments analysis. Selecting an analytical method. Neatness and cleanliness. Laboratory operation and practices.	24/05/23 TO 20/06/23	4	5	Blackboard & Chalk
	Analytical balance. Techniques of weighing errors, volumetric glass ware-cleaning and calibration of glass ware. Sample preparationdissolutions and decompositions . Safety in the Analytical Laboratory.	21/06/23 To 11/07/23	4	4	Blackboard, Chalk & Models
Unit VII:	Food analysis : Reasons for food analysis. Analysis of moisture in vegetable oils & spices. Analysis of ash in honey. Analysis of crude fibres in spices and condiments. Food adulteration commonadulterants in food. Contamination of food stuffs. Common micro-organisms of food stuffs. Pesticide analysis in food products by TLC technique.	12/07/23 TO 17/08/23	8	9	Blackboard & Chalk



FACULTY
kal
(Smt. Anjana.K)

HOD
[Signature]
Head of the
Department of Chemistry
Smt ASM Degree College for Womens
BELLARY.

PRINCIPAL
[Signature]
PRINCIPAL
Smt. ASM College,
For Women, BALLARI.

V.V.SANGHA'S
Smt. A.S.M. COLLEGE FOR WOMEN, BALLARI
DEPARTMENT OF CHEMISTRY
TEACHING PLAN



Academic year: 2022-2023

Course: B.Sc (NEP)

Semester: 3rd

Name of the Faculty: Smt. Anjana.K

Unit No	Title of the Chapter& Description	Period/Month	No of hours allotted	Hours taken /Conducted	Teaching pdagogy/ methodology used
UNIT IV	Geometrical isomerism : Cis-trans and syn-anti isomerism, E/Z notations with C.I.P rules. Optical Isomerism :Optical activity, Specific rotation, Chirality/Asymmetry, Enantiomers, Molecules with two or more chiral centres, Diastereoisomers, meso structures, Racemic mixtures and Resolution, Relative and absolute configuration, D/L and R/S designations	22/10/22 To 09/12/22	8	9	Blackboard & Chalk
	Fischer projection,Newmann and Sawhorse projection formulae and thei interconversion	10/12/22 To 13/01/23	6	7	Blackboard & Chalk
Unit II:	Separation methods: Fundamentals of chromatography: General description, definition, terms and parameters used in chromatography, classification of chromatographic methods, criteria for selection of stationary and mobile phase and nature of adsorbents. Principles of paper, thin layer, column chromatography. Column efficiency, factors affecting the column efficiency, van Deemter's equation and its modern version.	14/01/22 TO 28/01/23	3	5	Blackboard & Chalk

FACULTY

kes
(Smt. Anjana.K)

HOD

[Signature]
Head of the
Department of Chemistry
Smt ASM Degree College for Womens
BELLARY.

[Signature]
PRINCIPAL

PRINCIPAL
Smt. ASM College,
For Women, BALLARI.

V.V.SANGHA'S
Smt. A.S.M. COLLEGE FOR WOMEN, BALLARI
DEPARTMENT OF CHEMISTRY
TEACHING PLAN



Academic year: 2022-2023

Course: B.Sc (Non-NEP)

Name of the Faculty: Smt. Anjana.K

Semester: 5th

Unit No	Title of the Chapter & Description	Period/Month	No of hours allotted	Hours taken /Conducted	Teaching pedagogy/ methodology used
UNIT I	Coordination Compounds: Complex salts and double salts, Werner's theory of complexes. Sidwick theory of the EAN concept. Types of ligands- Monodentate (Cationic and anionic), Polydentate and ambidentate. Factors affecting the stability of complexes. Nomenclature of coordination compounds, geometrical isomerism of coordination compounds with CN 4 & 6.	21/10/22 To 02/12/22	4	6	Blackboard & Chalk
	Bonding in coordination compounds : Valence bond theory (VBT). Pauling's assumptions, inner and outer orbital complexes with examples. Formation of the following complexes on the basis of VBT. $[\text{Cu}(\text{NH}_3)_4]^{2+}$, $[\text{Ni}(\text{CN})_4]^{2-}$, $[\text{Ni}(\text{CO})_4]$, $[\text{Fe}(\text{CN})_6]^{4-}$, $[\text{Co}(\text{NH}_3)_6]^{3+}$	03/12/22 To 13/12/22	4	5	Blackboard & Chalk
Unit II:	Organic reagents in Inorganic Analysis: Introduction, significance of organic reagents, properties and structure of DMG, EDTA, Oxine and orthophenanthroline.	14/12/22 TO 30/01/23	4	5	Blackboard & Chalk
	Application of each of the above reagents in inorganic qualitative and quantitative analysis.	01/02/23 To 20/01/23	4	5	Blackboard, Chalk & Models

FACULTY

fej
(Smt. Anjana.k)

[Signature]
HOD

Head of the
Department of Chemistry
Smt ASM Degree College for Womens
BELLARY.

[Signature]
PRINCIPAL

PRINCIPAL
Smt. ASM College,
For Women, BALLARI.

V.V.SANGHA'S
Smt. A.S.M. COLLEGE FOR WOMEN, BALLARI
DEPARTMENT OF CHEMISTRY
TEACHING PLAN



Academic year: 2022-2023

Course: B.Sc

Name of the Faculty: Smt. Rohinaz

Semester: 5th

Unit No	Title of the Chapter & Description	Period/Month	No of hours allotted	Hours taken /Conducted	Teaching pdagogy/ methodology used
UNIT III	Heterocyclic compounds: Molecular orbital picture and aromatic character of pyrrole, furan, thiophen and pyridine. Methods of formation and reactions of pyrrole, furan, thiophen and pyridine. Comparison of basicity of pyrrole, pyridine and piperidine. Condensed five and six membered heterocyclics- preparation and reaction of indole and quinoline with special reference to Fischer Indole synthesis and Skraup synthesis	21/10/22 To 02/12/22	8	10	Blackboard & Chalk
Unit IV:	Organometallic compounds: Organomagnesium compounds: Grignard reagents- Formation, structure and chemical reactions.	03/12/22 To 13/12/22	3	5	Blackboard & Chalk
	Organozinc compounds: Formation and chemical reactions Organolithium compounds: Formation and chemical reactions.	14/12/22 TO 30/01/23	3	4	Blackboard & Chalk
	Organosulphur compounds: Nomenclature, structural features, methods of formation and chemical reactions of thiols, thioethers, sulphonic acids, sulphonamides and sulphaguanidine	01/02/23 To 20/01/23	2	3	Blackboard, Chalk & Models

FACULTY

(Smt. Rohinaz)

Rohinaz

HOD

[Signature]

Head of the
Department of Chemistry
Smt ASM Degree College for Womens
BELLARY.

PRINCIPAL

[Signature]
PRINCIPAL

Smt. Allum Sumangamma Memo
College For Women BELLARY



V.V.SANGHA'S
Smt. A.S.M. COLLEGE FOR WOMEN, BALLARI
DEPARTMENT OF CHEMISTRY
TEACHING PLAN

Academic year: 2022-2023

Course: B.Sc

Name of the Faculty: Smt. Rohinaz

Semester: 3rd

Unit No	Title of the Chapter & Description	Period/Month	No of hours allotted	Hours taken /Conducted	Teaching pedagogy/ methodology used
UNIT III	Reaction Intermediates: Generation, Stability and Reactions of: i) Carbocations: Dienone-phenol; and Pinacol-Pinacolone Rearrangement. ii) Carbanions :Perkin Reaction, Aldol condensation, Claisen-Schmidt condensation. iii) Free Radicals : Sandmeyer Reaction iv) Carbenes and Nitrenes: Singlet and Triplet states, their relative stability and reactions v) Arynes: Formation, detection etc.	22/10/22 To 09/12/22	8	9	Blackboard & Chalk
	Methods for Identifying Reaction Mechanism: Product analysis, Isolation and Identification of Intermediates, Stereochemical Evidences, Effect of Catalyst, crossover Experiments, Isotopic studies, Kinetic Studies.	10/12/22 To 13/01/23	6	7	Blackboard & Chalk
Unit IV:	Ion exchange chromatography: Resins, types with examples- cation exchange and anion exchange resins, mechanism of cation and anion exchange process and applications of ion-exchange chromatography (softening of hard water, separation of lanthanides, industrial applications).	14/01/22 TO 28/01/23	4	6	Blackboard & Chalk

FACULTY

(Smt. Rohinaz)

Rohinaz

HOD

[Signature]

Head of the

Department of Chemistry

Smt. ASM Degree College for Women
BELLARY.

PRINCIPAL

[Signature]
PRINCIPAL

Smt. Allum Sumangalamma Memorial
College For Women BELLARY

V.V.SANGHA'S
Smt. A.S.M. COLLEGE FOR WOMEN, BALLARI
DEPARTMENT OF CHEMISTRY
TEACHING PLAN



Academic year: 2022-2023

Course: B.Sc

Semester: 4th

Name of the Faculty: Smt. Rohinaz

Unit No	Title of the Chapter& Description	Period/Month	No of hours allotted	Hours taken /Conducted	Teaching pdagogy/ methodology used
UNIT III	<u>First Law of Thermodynamics:</u> Thermodynamic Processes, Reversible and Irreversible Processes, Nature of Heat and Work, Internal Energy, First Law of Thermodynamics, Enthalpy of a System, Work done in isothermal and adiabatic expansion of an ideal gas, Numerical problems, Joule -Thomson Expansion, Relation between Joule-Thomson coefficient and other thermodynamic parameters.	01/05/23 To 11/05/23	3	5	Blackboard & Chalk
	<u>Second law of Thermodynamics:</u> Concept of entropy, thermodynamic scale of temperature, Statements of the Second Law of Thermodynamics, molecular and statistical interpretation of entropy, Calculation of entropy change for reversible and irreversible processes, Free Energy Functions: Gibbs and Helmholtz energy, Variation of S, G, A with T, V and P, Numerical problems, Free energy change and spontaneity, Gibbs-Helmholtz equation.	12/05/23 To 23/05/23	4	6	Blackboard & Chalk
	<u>Third Law of Thermodynamics:</u> Statement of third law, concept of residual entropy, calculation of absolute entropy of molecules. 10 Hrs	24/05/23 TO 20/06/23	3	4	Blackboard & Chalk
	<u>Surface Chemistry</u> Adsorption Types of adsorption isotherms. Freundlich adsorption isotherm (only equation), its limitations. Langmuir adsorption isotherm (derivation to be done) and BET equation (derivation not included).	21/06/23 To 11/07/23	2	4	Blackboard, Chalk & Models



Catalysis Types of Catalysis and theories with examples (intermediate compound theory and adsorption theory), Theory of acid base catalysis, Michaelis-Menten mechanism. Heterogeneous catalysis: surface reactions, unimolecular, bimolecular surface reactions. Autocatalysis with examples. Applications: Design process to removal of toxic compounds from industrial wastewater and treatment of portable water requirements.	12/07/23 TO 17/08/23	2	4	Blackboard & Chalk
--	----------------------------	---	---	--------------------

FACULTY

(Smt. Rohinaz)

Rohinaz

HOD

[Signature]

Head of the
Department of Chemistry
Smt ASM Degree College for Womens
BELLARY.

PRINCIPAL

[Signature]
PRINCIPAL

Smt. Allum Sumangamma Memo
College For Women BELLARY

V.V.SANGHA'S
Smt. A.S.M. COLLEGE FOR WOMEN, BALLARI
DEPARTMENT OF CHEMISTRY
TEACHING PLAN



Academic year: 2022-2023

Course: B.Sc

Semester: 6th

Name of the Faculty: Smt. Rohinaz

Unit No	Title of the Chapter& Description	Period/Month	No of hours allotted	Hours taken /Conducted	Teaching pdagogy/ methodology used
UNIT III	Amines: Classification and nomenclature of amines, stereochemistry of amine nitrogen. Separation of amine mixture – Hinsburg method, structural features affecting the basicity of amines. Preparation of alkyl and aryl amines (reduction of nitro compounds, nitrites), reductive amination of aldehydic and ketonic compounds, Gabriel's phthalimide reaction, Hofmann's bromide reaction, reactions of amines, Electrophile substitutions of aryl amines, reaction with HNO ₃ . Synthetic transformations of aryl diazonium salts, azo coupling.	01/05/23 To 11/05/23	8	5	Blackboard & Chalk
Unit IV:	Amino acids:- Classification of amino acids with examples methods of Synthesis of amino acid s- Phthalimide, Melonic ester, Strecker's and Erlenmeyer synthesis. Zwitter ion, isoelectric point and electrophoresis of α -amino acids.	12/05/23 To 23/05/23	3	5	Blackboard & Chalk
	Peptides: - Nomenclature, geometry of peptide bond, peptide structure determination, end group analysis, selective hydrolysis of peptides, classical method of peptide synthesis, (carbobenzoxy method).	24/05/23 TO 20/06/23	3	4	Blackboard & Chalk
	Proteins- Classification based on composition and structure, primary and secondary structure of proteins.	21/06/23 To 11/07/23	2	3	Blackboard, Chalk & Models



Unit V:	Enzymes: Enzymes - Nomenclature and classification of enzymes (EC code number not necessary). Characteristic features of enzymes, active sites, specificity of enzymes. Enzyme kinetics – factors affecting the rate of enzymatic reactions, Michaelis-Menten equation (derivation not required), turnover number, and non-competitive inhibition, cofactors.	12/07/23 TO 17/08/23	8	11	Blackboard & Chalk
------------	---	----------------------------	---	----	-----------------------

FACULTY

(Smt. Rohinaz)

Rohinaz

HOD

[Signature]

Head of the
Department of Chemistry
Smt ASM Degree College for Womens
BELLARY.

PRINCIPAL

[Signature]

PRINCIPAL

Smt. Allum Sumangalamma Memorial
College For Women BELLARY

V.V.SANGHA'S
Smt. A.S.M. COLLEGE FOR WOMEN, BALLARI.
DEPARTMENT OF CHEMISTRY
TEACHING PLAN



Academic year: 2022-2023


Course: B.Sc.


Name of the Faculty: Smt. Lakshmi

Unit No	Title of the Chapter& Description	Period/Mont h	No of hours allotted	Hours taken /Conducted	Teaching pdagogy/ methodology used
Unit : II	Structure and Bonding –II Concept of resonance, resonance energy, hybridisation, types of hybridization, sp, sp ² , sp ³ dsp ² dsp ³ , d ² sp ³ , sp ³ d ² with one example each, and energetics of hybridization. Bent's rule, Limitations of Valence Bond Theory.	01/05/23 To 10/05/23	03	05	Black board
	Molecular Orbital theory: LCAO concept: s-s, s-p, p-p, p-d and d-d combinations of orbitals, bonding, nonbonding and antibonding molecular orbitals, non-bonding combinations of orbitals, Rules for linear combination of atomic orbitals	11/05/23 To 20/05/23	03	04	Black board
	Examples of molecular orbital treatment for homonuclear diatomic molecules H ₂ molecule, H ₂ ⁺ 2, He ₂ molecule, He ₂ ⁺ 2 molecule ion, Li ₂ molecule, Be ₂ molecule B ₂ molecule, C ₂ molecule, N ₂ molecule, N ₂ ⁺ , O ₂ molecule, O ₂ ⁺ -and O ₂ ²⁻ .	21/05/23 TO 30/05/23	02	03	Black board & Models
	M.O. energy diagrams of heteronuclear diatomic molecules with examples (NO, NO ⁺ , CO and HCl). Calculation of bond order, relationship between bond order, bond energy and bond length, magnetic properties based on MOT.	01/06/23 To 11/06/23	03	04	Black board

	Metallic Bonding: General properties of metals : Conductivity, Lustre, Malleability and cohesive force Crystal structures of metals and Bond lengths Theories of bonding in metals: Free electron theory, Valence bond theory, Molecular orbital or band theory of solids Prediction of conducting properties of conductors, insulators and semiconductors, extrinsic and intrinsic semiconductors using M.O. theory.	12/06/23 TO 28/07/23	04	05	Black board
Unit-I	Electrochemistry – I Arrhenius theory of electrolytic dissociation. Merits and Demerits, Conductance, Specific conductance, equivalent and molar conductivity and their variation with dilution. Molar conductivity at infinite dilution. Numerical problems.	29/07/23 To 04/08/23	03	04	Black board
	Kohlrausch's law of independent migration of ions and its applications, Debye-Hückel- Onsager equation. Ionic mobilities and their determinations, transference numbers and their relation to ionic mobility's, determination of transference numbers using Hittorf and Moving	05/08/23 to 10/08/23	02	04	Black board
	Applications of conductance measurement: (i) degree of dissociation of weak electrolytes (ii) ionic product of water (iii) solubility and solubility product of sparingly soluble salts (iv) conductometric titrations (acid base titrations only) and (v) Hydrolysis constants of salts. Numerical problems.	11/08/23 To 17/08/23	02	05	Black board


FACULTY

HOD

 Head of the
 Department of Chemistry
 Smt ASM Degree College for Womens
 BELLARY.


 PRINCIPAL
 PRINCIPAL
 Smt. ASM College,
 For Women, BALLARI.

V.V.SANGHA'S
Smt. A.S.M. COLLEGE FOR WOMEN, BALLARI.
DEPARTMENT OF CHEMISTRY
TEACHING PLAN



Academic year: 2022-2023

Course: B.Sc.

Semester: Sixth

Name of the Faculty: Smt. Lakshmi

Unit No	Title of the Chapter & Description	Period/Month	No of hours allotted	Hours taken /Conducted	Teaching pedagogy/ methodology used
Unit IV	Oils, Fats and Detergents & Organic synthesis via Enolates Oils, Fats and Detergents: Composition of Oils, fats and Waxes, analysis of fats and oils. Determination of acid value. Iodine value, saponification value and their importance. Manufacture of soaps by modern continuous process. Types of soaps syndets.	01/05/23 To 20/05/23	04	05	Black board
	Organic synthesis via Enolates: Acidity of α -hydrogens, Alkylation of diethyl malonate and ethylacetoacetate. Synthesis of ethylacetoacetate, Claisen condensation (mechanism) keto enol tautomerism of ethylacetoacetate. Alkylation and acylation of enamines.	21/05/23 To 11/06/23	04	04	Black board
Unit V	Synthetic Dyes and Drugs Dyes – colour and constitution – chromophore theory, electronic concept, classification of Dyes based on applications and composition. chemistry and synthesis of methyl orange. Congo red, malachite green, crystal violet, phenolphthalein. Fluorocin, alazari and indigo.	12/06/23 TO 30/07/23	04	05	Black board & Models
	Drugs –Elementary account of chemotherapy and chemotherapeutic agents, Antimalarials sulpha drugs and antibiotics. Synthesis and uses of antipyrine, chloramine -T, sulpha thiozole, chloroquin and sulphanilamide.	31/07/23 To 17/08/23	04	05	Black board

FACULTY

HOD

Head of the
Department of Chemistry
Smt ASM Degree College for Womens
BELLARY.

PRINCIPAL

PRINCIPAL
Smt. ASM College,
For Women, BALLARI.

V.V.SANGHA'S

Smt. A.S.M. COLLEGE FOR WOMEN, BALLARI.

DEPARTMENT OF CHEMISTRY

TEACHING PLAN



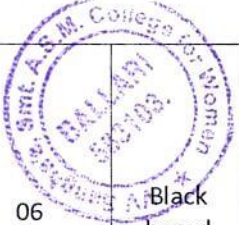
Semester: 1st

Academic year: 2021-2022

Course: B.Sc.


Name of the Faculty: Smt. Lakshmi

Unit No	Title of the Chapter & Description	Period/Month	No of hours allotted	Hours taken /Conducted	Teaching pedagogy/ methodology used
II	<p>Titrimetric analysis: Basic principle of titrimetric analysis. Classification, Preparation and dilution of reagents/solutions. Normality, Molarity and Mole fraction. Use of $N_1V_1 = N_2V_2$ formula, Preparation of ppm level solutions from source materials (salts), conversion factors.</p> <p>Acid-base titrimetry: Titration curves for strong acid vs strong base, weak acid vs strong base and weak base vs strong acid titrations. Titration curves,</p>	18/10/2021 To 02/11/2021	04	07	Black board
	<p>Quantitative applications : selecting and standardizing a titrant, inorganic analysis - alkalinity, acidity.</p> <p>Complex metric titrimetry: Indicators for EDTA titrations theory of metal ion indicators, titration methods employing EDTA- direct, back, displacement and indirect determinations, Application-determination of hardness of water.</p>	05/11/2021 To 02/12/2021	04	06	Black board
	<p>Redox titrimetry: Balancing redox equations, calculation of the equilibrium constant of redox reactions, titration curves, Theory of redox indicators, calculation of standard potentials using Nernst equation. Applications.</p> <p>Precipitation titrimetry: Titration curves, titrants and standards, indicators for precipitation titrations involving silver nitrate- Volhard's and Mohr's methods and their differences.</p>	05/12/2021 To 02/01/2022	04	05	Black board & Models

Gravimetric Analysis: Requisites of precipitation, mechanism of precipitation, Factors influencing precipitation, Co-precipitation, post-precipitation, Advantages of organic reagents over inorganic reagents, reagents used in gravimetry (8-hydroxy quinoline (oxine) and dimethyl glyoxime (DMG)).	03/01/2022 To 10/02/2022	04	06	 Black board
--	--	----	----	---


 FACULTY


 HOD
 Head of the
 Department of Chemistry
 Smt ASM Degree College for Womens
 BELLARY.

PRINCIPAL

 PRINCIPAL
 Smt. ASM College,
 For Women, BALLARI.

V.V.SANGHA'S

Smt. A.S.M. COLLEGE FOR WOMEN, BALLARI.

DEPARTMENT OF CHEMISTRY

TEACHING PLAN



Academic year: 2021-2022


Semester: V Sem


Course: B.Sc.

Name of the Faculty: Smt. Lakshmi

Unit No	Title of the Chapter& Description	Period/Month	No of hours allotted	Hours taken /Conducted	Teaching pdagogy/ methodology used
IV	Organometallic compounds : Organomagnesium compounds; Grignard reagents- Formation, structure and chemical reactions	20/10/2021 To 10/11/2021	04	07	Black board
	Organozinc compounds: Formation and chemical reactions Organolithium compounds: Formation and chemical reactions.	11/11/2021 To 08/12/2021	04	06	Black board
	Organosulphur compounds : Nomenclature, structural features, methods of formation and chemical reactions of thiols.	09/12/2021 To 12/01/2022	04	05	Black board & Models
	Organosulphur compounds : Thioethers, sulphonic acids, sulphonamides and sulphaguanidine	05/01/2022 To 08/02/2022	04	06	Black board


FACULTY

HOD 
Head of the
Department of Chemistry
Smt ASM Degree College for Womens
BALLARI.

PRINCIPAL 
PRINCIPAL
Smt. ASM College,
For Women, BALLARI.

V.V.SANGHA'S

Smt. A.S.M. COLLEGE FOR WOMEN, BALLARI.

DEPARTMENT OF CHEMISTRY

TEACHING PLAN



Academic year: 2021-2022


Semester: IV Sem


Course: B.Sc.

Name of the Faculty: Smt. Lakshmi

Unit No	Title of the Chapter& Description	Period/Month	No of hours allotted	Hours taken /Conducted	Teaching pdagogy/ methodology used
IV	Aldehydes and ketones : Synthesis of aldehydes from acid chlorides, synthesis of ketones from nitriles.	09/05/2022 To 30/05/2022	02	03	Black board
	Mechanism of nucleophilic addition reactions : Benzion, Aldol, Perkin's, Cannizarro, Knoevengal condensations.	02/06/2022 To 28/06/2022	02	04	Black board
	Types of Reactions : Mannich reactions, Clemmensen, Wolf-Kishner, LiAlH ₄ , NaBH ₄ reduations. Halogenation of enolisable ketones.	30/07/2022 To 01/08/2022	02	04	Black board & Models
	Organosulphur compounds : Thioethers, sulphonic acids, sulphonamides and sulphaguanidine, Structure, reactivity and properties of carboxyl group.	02/08/2022 To 10/08/2022	02	05	Black board


FACULTY


HOD
Head of the
Department of Chemistry
Smt ASM Degree College for Womens
BELLARY.


PRINCIPAL
PRINCIPAL
Smt. ASM College,
For Women, BALLARI.

V.V.SANGHA'S

Smt. A.S.M. COLLEGE FOR WOMEN, BALLARI.

DEPARTMENT OF CHEMISTRY

TEACHING PLAN

Academic year: 2021-2022

Course: B.Sc.


Name of the Faculty: Smt. Lakshmi



Unit No	Title of the Chapter& Description	Period/Month	No of hours allotted	Hours taken /Conducted	Teaching pdagogy/ methodology used
	Environmental Chemistry : Types and sources of air pollution. Determination of particulates, SO _x , NO _x & CO _x	09/05/2022 To 30/05/2022	02	03	Black board
	Water Pollution: Different types of water pollutants. Ground water pollution, surface water pollution and marine water pollution.	02/06/2022 To 28/06/2022	02	04	Black board
	Impacts of water pollution: environment, COD, BOD. Control of water pollution	30/07/2022 To 01/08/2022	02	04	Black board & Models
	Industrial effluents:- their effects & treatment, sewage water treatment. Water and air quality standards (ISI & WHO	02/08/2022 To 10/08/2022	02	05	Black board
	Plastics : reuse and degradation.	02/08/2022 To 10/08/2022			Black board


FACULTY

HOD 
Head of the
Department of Chemistry
Smt ASM Degree College for Womens
BELLARY.

PRINCIPAL 
PRINCIPAL
Smt. ASM College,
For Women, BALLARI.

V.V.SANGHA'S

Smt. A.S.M. COLLEGE FOR WOMEN, BALLARI.

DEPARTMENT OF CHEMISTRY

TEACHING PLAN



Academic year: 2021-2022

Course: B.Sc.

Name of the Faculty: Smt. Lakshmi

Semester: Ist Sem NEP

Unit No	Title of the Chapter& Description	Period/Month	No of hours allotted	Hours taken /Conducted	Teaching pdagogy/ methodology used
III	Mechanisms of Organic Electron movements and directions of reactions- curly arrows, formal charges.	19/10/2022 To 25/10/2022	02	03	Black board
	Types of bonds breaking- Homolytic and heterolytic. Types of reagents-Electrophiles,	26/10/2022 To 30/10/2022	02	04	Black board
	Types of organic reactions : substitution, addition, elimination, rearrangement and pericyclic reactions, explanation with examples.	31/10/2022 To 10/11/2022	04	06	Black board
	Chemistry of Aliphatic Hydrocarbons Wurtz reaction, Wurtz-Fittig reaction, Free radical substitution, Halogenation-relative reactivity	11/11/2022 To 10/12/2022	04	06	Black board
IV	Nucleophilic substitution Reaction : at saturated carbon. Mechanism of SN and S ² reactions with suitable examples.	11/12/22 To 26/12/2022	02	03	Black board
	Energy profile diagrams: Stereochemistry and factors effecting SN and SN ² reactions.	27/12/22 to 31/12/2022	02	03	Black board
	Aromatic Electrophilic : substitution reactions, Mechanisms, o and a complexes, Halogenation, Nitration, Sulphonation,	01/01/023 to 15/01/2023	04	04	Black board
	Friedel Activating & Deactivating Groups : Crafts alkylation and acylation with their mechanism. Activating and deactivating groups. Orientation influence, Orthopara ratio.	16/01/023 to 14/02/2023	04	04	Black board

FACULTY

HOD

Head of the
Department of Chemistry
Smt ASM Degree College for Women
BALLARI.

PRINCIPAL

PRINCIPAL
Smt. ASM College,
For Women, BALLARI.

V.V.SANGHA'S

Smt. A.S.M. COLLEGE FOR WOMEN, BALLARI.

DEPARTMENT OF CHEMISTRY

TEACHING PLAN

Academic year: 2021-2022


Course: B.Sc.

Name of the Faculty: Smt. Lakshmi



Unit No	Title of the Chapter& Description	Period/Month	No of hours allotted	Hours taken /Conducted	Teaching pdagogy/ methodology used
I	Bio-Inorganic chemistry: Essential and trace elements in biological processes.	18/10/2022 To 31/10/2022	02	03	Black board
	Structure of Hb & Mb Biological role of alkali and alkaline earth metal	31/10/2022 To 04/11/2022	02	04	Black board
	Nitrogen fixation ions with special reference to Ca^{+2} . Nitrogen fixation.	05/11/2022 To 31/12/2022	04	06	Black board
II	Inorganic polymers : Types of inorganic polymers,	1/01/22 To 13/01/2022	02	03	Black board
	Organic polymers : comparison with organic polymers	15/01/22 to 22/01/2022	02	03	Black board
	Synthesis polymers : Synthesis, structural aspects and applications of Borazole, Silicones, α -Phosphonitryls, Fluorocarbons - Teflon.	25/01/22 to 15/02/2022	04	04	Black board


FACULTY


HOD
Head of the
Department of Chemistry
Smt ASM Degree College for Womens
BALLARI.


PRINCIPAL
PRINCIPAL
Smt-ASM College,
For Women, BALLARI,

V.V.SANGHA'S

Smt. A.S.M. COLLEGE FOR WOMEN, BALLARI.

DEPARTMENT OF CHEMISTRY

TEACHING PLAN

Academic year: 2021-2022


Course: B.Sc.

Name of the Faculty: Smt. Lakshmi



Unit No	Title of the Chapter& Description	Period/Month	No of hours allotted	Hours taken /Conducted	Teaching pdagogy/ methodology used
III	Mechanisms of Organic Electron movements and directions of reactions- curly arrows, formal charges.	19/10/2022 To 25/10/2022	02	03	Black board
	Types of bonds breaking- Homolytic and heterolytic. Types of reagents-Electrophiles,	26/10/2022 To 30/10/2022	02	04	Black board
	Types of organic reactions : substitution, addition, elimination, rearrangement and pericyclic reactions, explanation with examples.	31/10/2022 To 10/11/2022	04	06	Black board
	Chemistry of Aliphatic Hydrocarbons Wurtz reaction, Wurtz-Fittig reaction, Free radical substitution, Halogenation-relative reactivity	11/11/2022 To 10/12/2022	04	06	Black board
IV	Nucleophilic substitution Reaction : at saturated carbon. Mechanism of SN and S ² reactions with suitable examples.	11/12/22 To 26/12/2022	02	03	Black board
	Energy profile diagrams: Stereochemistry and factors effecting SN and SN ² reactions.	27/12/22 to 31/12/2022	02	03	Black board
	Aromatic Electrophilic : substitution reactions, Mechanisms, o and a complexes, Halogenation, Nitration, Sulphonation,	01/01/2023 to 15/01/2023	04	04	Black board
	Friedel Activating & Deactivating Groups : Crafts alkylation and acylation with their mechanism. Activating and deactivating groups. Orientation influence, Orthopara ratio.	16/01/2023 to 14/02/2023	04	04	Black board


FACULTY


HOD
Head of the
Department of Chemistry
Smt ASM Degree College for Womens
BELLARY.


PRINCIPAL
PRINCIPAL
Smt. ASM College,
For Women, BALLARI.

V.V.SANGHA'S

Smt. A.S.M. COLLEGE FOR WOMEN, BALLARI.

DEPARTMENT OF CHEMISTRY

TEACHING PLAN

Academic year: 2021-2022

Course: B.Sc.


Name of the Faculty: Smt. Lakshmi

Semester: V.Sem



Unit No	Title of the Chapter & Description	Period/Month	No of hours allotted	Hours taken /Conducted	Teaching pedagogy/ methodology used
I	Bio-Inorganic chemistry: Essential and trace elements in biological processes.	18/10/2022 To 31/10/2022	02	03	Black board
	Structure of Hb & Mb Biological role of alkali and alkaline earth metal	31/10/2022 To 04/11/2022	02	04	Black board
	Nitrogen fixation ions with special reference to Ca^{+2} . Nitrogen fixation.	05/11/2022 To 31/12/2022	04	06	Black board
II	Inorganic polymers : Types of inorganic polymers,	1/01/22 To 13/01/2022	02	03	Black board
	Organic polymers : comparison with organic polymers	15/01/22 to 22/01/2022	02	03	Black board
	Synthesis polymers : Synthesis, structural aspects and applications of Borazole, Silicones, α -Phosphonitryls, Fluorocarbons - Teflon.	25/01/22 to 15/02/2022	04	04	Black board


FACULTY

HOD

Head of the
Department of Chemistry
Smt ASM Degree College for Womens
BALLARI.


PRINCIPAL
PRINCIPAL
Smt. ASM College,
For Women, BALLARI.

V.V.SANGHA'S
Smt.A.S.M. COLLEGE FOR WOMEN, BALLARI
DEPARTMENT OF : CHEMISTRY
TEACHING PLAN



Academic Year : 2021-22

Semester: I

Course : B.Sc

Name of the Faculty : J.P.GOVIND

UNIT NO	Title of the Chapter & Description	Period/ month	No. of Hours Allotted	Hours Taken / Conducted	Teaching Pedagogy/ Methodology used
1.	<p>Language of analytical chemistry: Definitions of analysis, determination, measurement, techniques and methods. Classification of analytical techniques. Choice of an analytical method - accuracy, precision, sensitivity, selectivity, method validation. Figures of merit of analytical methods and limit of detection (LOD), Limit of quantification (LOQ), linear dynamic range (working range). Errors and treatment of analytical data: Limitations of analytical methods – Errors: Determinate and indeterminate errors, absolute error, relative error, minimization of errors. Statistical treatment of finite samples -mean, median, range, standard deviation and variance. External standard calibration - regression equation (least squares method), correlation coefficient (R²). Numerical problems</p> <p>Basic laboratory practices, calibration of glassware (pipette, burette and volumetric flask), Sampling (solids and liquids), weighing, drying, dissolving, Acid treatment, Rules of work in analytical laboratory, General rule for performing quantitative determinations (volumetric and gravimetric), Safety in Chemical laboratory, Rules of fire prevention and accidents, First aid. Precautions to be taken while handling toxic chemicals, concentrated/fuming acids and organic solvents.</p>	04 Hrs	14 Hrs	18Hrs	Black Board & Chalk

FACULTY

HOD

Head of the
Department of Chemistry
Smt ASM Degree College for Womens
BALLARI.

PRINCIPAL
PRINCIPAL
Smt. ASM College
For Women, BALLARI.

V.V.SANGHA'S
Smt.A.S.M. COLLEGE FOR WOMEN, BALLARI
DEPARTMENT OF : CHEMISTRY
TEACHING PLAN

Academic Year : 2021-22


Semester: II


Course : B.Sc

Name of the Faculty : J.P.GOVIND

UNIT NO	Title of the Chapter & Description	Period/ month	No. of Hours Allotted	Hours Taken / Conducted	Teaching Pedagogy/ Methodology used
1.	<p><u>Gaseous State</u> Elementary aspects of kinetic theory of gases, Ideal and real gases. Boyle temperature (derivation not required), Molecular velocity, collision frequency, collision diameter, Collision cross section, collision number and mean free path and coefficient of viscosity, calculation of σ and η, variation of viscosity with temperature and pressure. Maxwell's Boltzmann distribution law of molecular velocities (Most probable, average and root mean square velocities). Relation between RMS, average and most probable velocity and average kinetic energies. (Mathematical derivation not required), law of equipartition of energy. Behaviour of real gases: Deviation from ideal gas behaviour. Compressibility factor (Z) and its variation with pressure for different gases. Causes of deviation from ideal behaviour, vander Waals equation of stat (No derivation) and application in explaining real gas behaviour. Critical phenomena - Andrews isotherms of CO₂, critical constants and their calculation from van der Waals equation, Continuity of states, Law of corresponding states. Numerical problems.</p> <p><u>Liquid State</u> Surface Tension: Definition and its determination using stalagmometer, effect of temperature and solute on surface tension Viscosity: Definition, Coefficient of viscosity. Determination of viscosity of a liquid using Oswald viscometer. Effect of temperature, size, weight, shape of molecules and intermolecular forces. Refraction: Specific and molar refraction- definition and advantages. Determination of refractive index by Abbes Refractometer. Additive and constitutive properties. Parachor: Definition, Atomic and structure parachor, Elucidation of structure of benzene and benzoquinone. Viscosity and molecular structure. Molar refraction and chemical constitution. Numerical Problems.</p>	08 Hrs	14 Hrs	20Hrs	Black Board & Chalk


FACULTY


HOD
Head of the
Department of Chemistry
Smt ASM Degree College for Womens
BELLARY.


PRINCIPAL
PRINCIPAL
Smt. ASM College
For Women, BALLARI.

V.V.SANGHA'S
Smt.A.S.M. COLLEGE FOR WOMEN, BALLARI
DEPARTMENT OF : CHEMISTRY
TEACHING PLAN

Academic Year : 2021-22

Semester: V

Course : B.Sc


Name of the Faculty : J.P.GOVIND

UNIT NO	Title of the Chapter & Description	Period/ month	No. of Hours Allotted	Hours Taken / Conducted	Teaching Pedagogy/ Methodology used
1.	<u>Electrochemistry</u> Conductance, specific, molar and equivalent and relation between them, Cell constant and determination of equivalent conductance. Variation of equivalent conductance with dilution. Kohlrausch law, ionic conductivity, ionic mobility and relation between them. Applications of conductance measurements i) Conductometric titrations-strong acid and a strong base, weak acid-strong base and mixtures of strong acid and weak acids against strong base ii) Equivalent conductance of weak electrolyte at infinite dilution.	08 Hrs	08 Hrs	10 Hrs	Black Board & Chalk
2.	<u>Catalysis</u> General characteristics of catalytic reactions, Acid-Base catalysis. Kinetics of acid-base catalysed reaction, mechanism of pH dependence of the rate constant of catalysed reaction. Autocatalysis and oscillatory reactions, Belousov-Zhabotinski reaction, a qualitative approach. The Brussellator and Originator models.		08 Hrs	10 Hrs	Black Board & Chalk


FACULTY


HOD

Head of the
Department of Chemistry
Smt. ASM Degree College for Women
BALLARI.


PRINCIPAL
PRINCIPAL
Smt. ASM College
For Women, BALLARI.

V.V.SANGHA'S
Smt.A.S.M. COLLEGE FOR WOMEN, BALLARI
DEPARTMENT OF : CHEMISTRY
TEACHING PLAN

Academic Year : 2021-22


Semester: VI


Course : B.Sc

Name of the Faculty : J.P.GOVIND

UNIT NO	Title of the Chapter & Description	Period/ month	No. of Hours Allotted	Hours Taken / Conducted	Teaching Pedagogy/ Methodology used
1.	<p><u>Colligative Properties</u> Colligative Properties- Semi permeable membrane, natural and artificial semi permeable membranes. Examples, preparation of copper ferrocyanide semipermeable membrane. Osmosis, osmotic pressure its determination by Berkley and Harley method. Theory of dilute solutions, laws of Osmotic pressure, molecular mass from osmotic pressure measurements. Isotonic solutions. Relative lowering of vapour pressure. Raoult's Law and it's derivation. Relation between relative lowering of vapour pressure and molecular mass (to be derived). Ostwalds and Walker method of determination of relative lowering of vapour pressure. Elevation of boiling point and its relationship to the lowering of vapour pressure and molar mass (to be derived using Clepeyron – Clausius equation). Ebullioscopic constant k_b of the solvent and its relation to the boiling point and enthalpy of vapourisation of the solvent. Determination of molar mass of solute by ebullioscopic method (Landsbergers method).</p>	08 Hrs	08 Hrs	10 Hrs	Black Board & Chalk
2.	<p><u>Electromotive force</u> Electromotive force - Galvanic cells and electrode reaction. Measurement of EMF, Standard cell (Weston). Types of electrodes, sign convention of electrode potential (reduction potential is to be adopted), rules for representation of the cell. Nernst's equation of electrode potential (to be derived) E & EO of the cell. Calculation of electrode potential, standard electrode potential, reference electrode. (a) Hydrogen electrode (b) Calomel electrode (c) Silver – Silver chloride electrode. Application of EMF measurements (I) Determination of Ph of a solution by using hydrogen electrode (II) Potentiometric titrations (a) Acid – base and (b) Redox titrations. Concentration cells with and without transference, liquid junction potential.</p>		08 Hrs	10 Hrs	Black Board & Chalk


FACULTY


HOD
Head of the
Department of Chemistry
Smt ASM Degree College for Women,
BELLARY.


PRINCIPAL
PRINCIPAL
Smt. ASM College
For Women, BALLARI.

V.V.SANGHA'S
Smt. A.S.M. COLLEGE FOR WOMEN, BALLARI
DEPARTMENT OF CHEMISTRY
TEACHING PLAN



Academic year: 2021-2022

Course: B.Sc

Name of the Faculty: Smt. Rohinaz

Unit No	Title of the Chapter& Description	Period/Month	No of hours allotted	Hours taken /Conducted	Teaching pdagogy/ methodology used
UNIT III	<u>Amines:</u> Classification and nomenclature of amines, stereochemistry of amine nitrogen. Separation of amine mixture – Hinsburg method, structural features affecting the basicity of amines. Preparation of alkyl and aryl amines (reduction of nitro compounds, nitrites), reductive amination of aldehydic and ketonic compounds, Gabriel's phthalimide reaction, Hofmann's bromide reaction, reactions of amines, Electrophile substitutions of aryl amines, reaction with HNO ₃ . Synthetic transformations of aryl dizonium salts, azo coupling.	08/05/22 To 12/06/22	8	5	Blackboard & Chalk
Unit IV:	<u>Amino acids:-</u> Classification of amino acids with examples methods of Synthesis of amino acid s- Phthalimide, Melonic ester, Strecker's and Erlenmeyer synthesis. Zwitter ion, isoelectric point and electrophoresis of α -amino acids.	14/06/22 To 24/06/22	3	5	Blackboard & Chalk
	<u>Peptides: -</u> Nomenclature, geometry of peptide bond, peptide structure determination, end group analysis, selective hydrolysis of peptides, classical method of peptide synthesis, (carbobenzoxy method).	25/06/22 TO 04/07/22	3	4	Blackboard & Chalk
	<u>Proteins-</u> Classification based on composition and structure, primary and secondary structure of proteins.	05/07/22 To 26/07/22	2	3	Blackboard, Chalk & Models



Unit V:	Enzymes: Enzymes - Nomenclature and classification of enzymes (EC code number not necessary). Characteristic features of enzymes, active sites, specificity of enzymes. Enzyme kinetics – factors affecting the rate of enzymatic reactions, Michaelis-Menten equation (derivation not required), turnover number, and non-competitive inhibition, cofactors.	28/07/22 TO 25/08/22	8	11	Blackboard & Chalk
Paper 6.2					
Unit VII	Food analysis: Reasons for food analysis. Analysis of moisture in vegetable oils & spices. Analysis of ash in honey. Analysis of crude fibres in spices and condiments. Food adulteration common adulterants in food. Contamination of food stuffs. Common micro-organisms of food stuffs. Pesticide analysis in food products by TLC technique.	26/08/23 To 30/08/23	8	9	Blackboard & Chalk

FACULTY

(Smt. Rohinaz)

Rohinaz

HOD

H. B. Shant

Head of the
Department of Chemistry
Smt ASM Degree College for Womens
BELLARY.

PRINCIPAL

Sumangamma

PRINCIPAL

Smt. Allum Sumangamma Memo
College For Women BELLARY

V.V.SANGHA'S
Smt. A.S.M. COLLEGE FOR WOMEN, BALLARI
DEPARTMENT OF CHEMISTRY
TEACHING PLAN



Semester: 3rd

Academic year: 2021-2022

Course: B.Sc (Non-NEP)

Name of the Faculty: Smt. Rohinaz

Unit No	Title of the Chapter& Description	Period/Month	No of hours allotted	Hours taken /Conducted	Teaching pdagogy/ methodology used
UNIT III	Alcohols: Classification with examples. Monohydric alcohols: Classification and nomenclature (IUPAC). General methods of preparation of monohydric (primary, secondary and tertiary) alcohols. Action of Grignard reagents on carbonyl compounds, hydration of alkenes. Hydroboration-oxidation of alkenes. Reactions of monohydric alcohols involving O-H bond and C-O bond cleavage (n-propyl, isopropyl and t-butyl alcohol may be taken as examples). Hydrogen bonding in alcohols mechanism of esterification of ethyl alcohol by acetic acid.	18/10/21 To 09/11/22	4	6	Blackboard & Chalk
	Dihydric alcohols: Methods of preparation, chemical reactions of vicinal glycols, oxidative cleavage [(CH ₃ COO) ₄ Pb and HIO ₄], Pinacol-Pinacolone rearrangement and its mechanism. Trihydric alcohols: General methods of preparation and reactions of glycerol.	12/11/22 To 21/12/21	4	5	Blackboard & Chalk
Unit IV:	Phenols: Classification with examples, preparation of phenol, physical properties and acidic character. Comparative acidic strength of alcohols and phenols. Resonance stabilization of phenoxide ion. Reactions of phenols- electrophillic aromatic substitution, acylation and carboxylation. Mechanism of Fries rearrangement, Claisen rearrangement, Gattermann synthesis, HaulbenHoesch reaction, Laderer Manasse reaction and Reimer-Tiemann reaction.	25/12/21 TO 27/02/22	8	10	Blackboard & Chalk

FACULTY

HOD

PRINCIPAL

(Smt. Rohinaz)

Rohinaz

H. B. Shamy

Head of the
Department of Chemistry
Smt ASM Degree College for Women
BELLARY.

[Signature]
PRINCIPAL

Smt. Alluri Sumangalamma Memorial
College For Women BELLARY



V.V.SANGHA'S
Smt. A.S.M. COLLEGE FOR WOMEN, BALLARI
DEPARTMENT OF CHEMISTRY
TEACHING PLAN

Academic year: 2021-2022

Course: B.Sc (Non-NEP)

Name of the Faculty: Smt. Rohinaz

Semester: 5th

Unit No	Title of the Chapter & Description	Period/Month	No of hours allotted	Hours taken /Conducted	Teaching pedagogy/ methodology used
UNIT III	Heterocyclic compounds: Molecular orbital picture and aromatic character of pyrrole, furan, thiophen and pyridine. Methods of formation and reactions of pyrrole, furan, thiophen and pyridine. Comparison of basicity of pyrrole, pyridine and piperidine. Condensed five and six membered heterocyclics- preparation and reaction of indole and quinoline with special reference to Fischer Indole synthesis and Skraup synthesis	18/10/21 To 30/12/21	8	10	Blackboard & Chalk
Unit V:	Spectroscopy of organic compounds: Ultraviolet spectroscopy (UV): principles and measurements, electronic excitation, simple chromophoric groups, conjugated system, system of extended conjugation, aromatic systems explanation by taking acetaldehyde and benzaldehyde and acetone and acetophenone.	01/01/22 To 13/02/22	3	5	Blackboard & Chalk
	Infrared spectroscopy (IR): Molecular vibrations, principles and measurements, absorption of common functional groups-NH ₂ , NH, -OH, -C=N, -C≡N, >C=O, -COOR, finger print region of aromatic compounds.	14/02/22 TO 10/03/22	3	4	Blackboard & Chalk

FACULTY

(Smt. Rohinaz)

Rohinaz

HOD

H. B. Shani

Head of the
Department of Chemistry
Smt ASM Degree College for Womens
BELLARY.

PRINCIPAL

Atul
PRINCIPAL

Smt. Allum Sumangalamma Memorial
College For Women BELLARY

V.V.SANGHA'S
Smt. A.S.M. COLLEGE FOR WOMEN, BALLARI
DEPARTMENT OF CHEMISTRY
TEACHING PLAN



Academic year: 2021-2022

Course: B.Sc (Non-NEP)

Name of the Faculty: Smt. Anjana.K

Semester: 3rd

Unit No	Title of the Chapter& Description	Period/Month	No of hours allotted	Hours taken /Conducted	Teaching pdagogy/ methodology used
UNIT I	Chemical bonding : Ionic bond- Definition, factors influencing formation of ionic bond. Born-Haber cycle, calculation of lattice energy of an ionic solid like NaCl. Hydrogen bonding. Covalent bond- definition, Valenc Bond Theory (explanation without mathematical approach). Directional characteristics of covalent bond.	18/10/21 To 09/11/22	4	6	Blackboard & Chalk
	Molecular orbital theory : An elementary idea of MOT, LCAO- Bonding and antibonding molecular orbitals, rules relating to filling up of electrons in molecular orbitals. Molecular orbital structure and bond order of species like Helium, Hydrogen, Nitrogen, Oxygen and Fluorine. Comparision of VBT and MOT.	12/11/22 To 21/12/21	4	5	Blackboard & Chalk
UnitII:	Non –Aqueous Solvents : Physical properties of solvents for functioning as an effective neutralization medium. Types of solvents and general characteristics. Reactions in non-aqueous solvents like liquid ammonia and liquid sulphur dioxide.	25/12/21 TO 27/02/22	8	10	Blackboard & Chalk

FACULTY

(Smt. Anjana.K)

HOD

Head of the
Department of Chemistry
Smt. ASM Degree College for Womens
BELLARY.

PRINCIPAL

PRINCIPAL
Smt. ASM College,
For Women, BALLARI.

V.V.SANGHA'S
Smt. A.S.M. COLLEGE FOR WOMEN, BALLARI
DEPARTMENT OF CHEMISTRY
TEACHING PLAN



Academic year: 2021-2022

Course: B.Sc (Non-NEP)

Name of the Faculty: Smt. Anjana.K

Unit No	Title of the Chapter& Description	Period/Month	No of hours allotted	Hours taken /Conducted	Teaching pdagogy/ methodology used
UNIT I	Bio-Inorganic chemistry :Essential and trace elements in biological processes. Metalloporphyrins with special reference to haemoglobin and myoglobin.	18/10/21 To 30/12/21	8	10	Blackboard & Chalk
	Biological role of alkali and alkaline earth metal ions with special reference to Ca ²⁺ . Nitrogen fixation.	01/01/22 To 13/02/22	3	5	Blackboard & Chalk
Unit V:	Inorganic polymers :Types of inorganic polymers, comparison with organic poymers.Synthesis, structural aspects and applications of Borazole, Silicones, α-Phosphonitryls, Fluorocarbons - Teflon.	14/02/22 TO 10/03/22	3	4	Blackboard & Chalk

FACULTY
(Signature)
(Smt. Anjana.K)

HOD
(Signature)
Head of the
Department of Chemistry
Smt ASM Degree College for Womens
BELLARY.

PRINCIPAL
(Signature)
PRINCIPAL
Smt. ASM College,
For Women, BALLARI.

V.V.SANGHA'S
Smt. A.S.M. COLLEGE FOR WOMEN, BALLARI
DEPARTMENT OF CHEMISTRY
TEACHING PLAN



Academic year: 2021-2022

Course: B.Sc (Non-NEP)

Name of the Faculty: Smt. Anjana.k

Semester: 4th

Unit No	Title of the Chapter& Description	Period/Month	No of hours allotted	Hours taken /Conducted	Teaching pdagogy/ methodology used
UNIT I	Nuclear Chemistry : Nuclear stability, n/p ratio and binding energy. Radioactive decay series, radioactive equilibrium, artificial transmutation of elements using protons, neutron and their relative efficiency as projectiles.	08/05/22 To 12/06/22	8	10	Blackboard & Chalk
	Induced radioactivity, radioactive isotopes and their uses in studying a mechanism of reactions	14/06/22 To 24/06/22			Blackboard & Chalk
Unit II	d-Block elements : General characteristics of transition metals with respect to electronic configuration, atomic size, ionization potential, variable oxidation states, magnetic property, colour and spectra. Explanation with refrence to 3d series elements.	25/06/22 TO 04/07/22	4	5	Blackboard & Chalk
	f-Block elements :Lanthanide series - electronic configuration, oxidation states, magnetic property, colour and spectra. Lanthanide contraction. Separation of lanthanides by ion exchange process.	05/07/22 To 26/07/22	4	4	Blackboard, Chalk & Models
Unit IV:	Stereochemistry : Geometrical isomerism: Geometrical isomerism in maleic acid and fumaric acids. Determination of configurations of geometrical isomers. Nomenclature of geometrical Isomers- E Z system. Geometrical isomerism in oximes, Backmann Rearrangements	28/07/22 TO 25/08/22	4	5	Blackboard & Chalk

FACULTY

(Smt. Anjana.K)

HOD

Head of the

Department of Chemistry

Smt ASM Degree College for Womens
BALLARI.

PRINCIPAL

PRINCIPAL
Smt. ASM College,
For Women BALLARI.

V.V.SANGHA'S
Smt. A.S.M. COLLEGE FOR WOMEN, BALLARI
DEPARTMENT OF CHEMISTRY
TEACHING PLAN



Academic year: 2021-2022

Course: B.Sc (Non-NEP)

Name of the Faculty: Smt. Anjana.K

Unit No	Title of the Chapter& Description	Period/Month	No of hours allotted	Hours taken /Conducted	Teaching pdagogy/ methodology used
UNIT IV	Oils, Fats and Detergents & Organic synthesis via Enolates : Oils, Fats and Detergents: Composition of Oils, fats and Waxes, analysis of fats and oils. Determination of acid value.	08/05/22 To 12/06/22	6	8	Blackboard & Chalk
	Iodine value, saponification value and their importance. Manufacture of soaps by modern continuous process. Types of soaps syndets.	14/06/22 To 24/06/22			Blackboard & Chalk
	Organic synthesis via Enolates: Acidity of α -hydrogens , Alkylation of diethyl malonate and ethylacetoacetate. Synthesis of ethylacetoacetate, Claisen condensation (mechanism) keto enol tautomerism of ethylacetoacetate. Alkylation and acylation of enamines.	05/07/22 To 26/07/22	2	3	Blackboard & Chalk

FACULTY

kes
(Smt. Anjana.K)

HOD

[Signature]
Head of the
Department of Chemistry
Smt ASM Degree College for Womens
BELLARY.

PRINCIPAL

[Signature]
PRINCIPAL
Smt. ASM College,
For Women, BALLARI.

V.V.Sangha's
SMT A.S.M. COLLEGE FOR WOMEN, BALLARI
DEPARTMENT OF CHEMISTRY
TEACHING PLAN



Academic Year: **2021-2022**

Semester: **THIRD SEMESTER**

Name of the Faculty: **Dr. Bindu P J**

Course: **BSc.**

Unit No.	Title of the Chapter & Description	Period/ Month	No. Of Hours Allotted	Hours Taken/ Conducted	Teaching Pedagogy/ Methodology used
Unit VI	Chemical Kinetics: Second order reaction, derivation of second order rate equation when $a=b$, experimental Methods of determination of order of reaction (differential, half and isolation methods).	1 st June to July 1 st	06 hours	05 hour	Black board & chalk
Unit-VII	Thermodynamics-I: First law of thermodynamics, enthalpy and its relation with internal energy molar heat Capacities of gases (C_p and C_v) relation between them to be derived. Expression for maximum work done during reversible, isothermal expansion of an ideal gas (to be derived) Joule-Thomson effect, Joule-Thomson coefficient, inversion temperature, Numerical problems.	2 nd July to 2 nd August	06 hours	06 hour	Black board & chalk
Unit: VII	Colloidal State Electrical properties, stability of colloids, protective action, Hardy-Schulze law, Gold Number. Liquids in liquids (emulsions): types of emulsion, preparation, emulsifiers. Liquids in solids (gels): Classification, preparation and properties, imbibition, general applications of colloids	3 rd August to 3 rd September	06 hours	07 hour	Black board & chalk
	Theory of reaction rates-qualitative treatment of collision theory of bimolecular reactions, Theory of unimolecular reactions (Lindemann's hypothesis). An elementary account of Transition state theory. Comparison of collision and transition state theory	4 th September to 24 th October	04 hours	05 hour	Black board & chalk

Signature of the Faculty

Signature of the HOD

Signature of the Principal

Head of the
Department of Chemistry
Smt ASM Degree College for Women
BELLARY

Principal
Smt. Allum Sumangalamma Memorial
Smt. Allum Gumangalamma Memorial
College for Women, Ballari-583103

SMT A.S.M. COLLEGE FOR WOMEN, BALLARI
DEPARTMENT OF CHEMISTRY
 TEACHING PLAN



Academic Year: **2021-2022**

Semester: **FIFTH SEMESTER (5.2)**

Name of the Faculty: **Dr. Bindu P J**

Course: **BSc.**

Unit No.	Title of the Chapter & Description	Period/ Month	No. Of Hours Allotted	Hours Taken/ Conducted	Teaching Pedagogy/ Methodology used
Unit V	Photochemistry: Interaction of radiation with matter, difference between thermal and Photochemical processes, laws of photochemistry Grothus Dropper law, Strak Einstein law. Joblonski diagram depicting various processes occurring in the excited state. Qualitative description of flourescence, phosphoresence, non-radioactive processes (internal conversion, inter system crossing), quantum yield, photosensitized reactions, energy transfer processes (simple examples).	1 st June to July 1 st	06 hours	05 hour	Black board & chalk
Unit VI	Physical Properties and Molecular Structure: Optical activity, polarization, (Clausius Mossotti equation). Orientation of dipoles in an electric field, dipole moment, induced dipole moment, measurement of dipole moment temperature method and refractivity method, dipole moment and structure of molecules, magnetic properties paramagnetism, diamagnetism and ferromagnetism.	2 nd July to 2 nd August	06 hours	06 hour	Black board & chalk
Unit VII	Chemistry of Newer Materials 08 Hrs Conducting polymers: Introduction, definition and example – polyaniline, polyacetylene, Mechanism of conduction. Qualitative treatment of doping properties, elasticity with high Electrical conductivities. Engineering and biological applications. Superconductors: Introduction, definition, type 1, type 2 and preparation of high temperature, super conductor. Y1Ba2CU3Ox+ d. B	3 rd August to 3 rd September	06 hours	07 hour	Black board & chalk
	Nanomaterials: Definition, properties, applications, carbon nano tubes, definition, types. Methods of prepration, properties and industrial applications of carbon nanotubes, Nanowires definition, types, production of crystalline nanowires by vapour – liquid – solid.synthesis method,applications of nanowires.	4 th September to 24 th October	04 hours	05 hour	Black board & chalk

Signature of the Faculty

Signature of the HOD

Head of the
 Department of Chemistry
 Smt ASM Degree College for Womens
 BELLARY

Signature of the Principal
 Principal

Smt. Allum Sumangamma Memorial
 College for Women, Ballari-583103



V.V.Sangha's
SMT A.S.M. COLLEGE FOR WOMEN, BALLARI
DEPARTMENT OF CHEMISTRY
TEACHING PLAN

Academic Year: **2021-2022**

Name of the Faculty: **Dr. Bindu P J**

Semester: **FOURTH SEMESTER**

Course: **BSc.**

Unit No.	Title of the Chapter & Description	Period/ Month	No. Of Hours Allotted	Hours Taken/ Conducted	Teaching Pedagogy/ Methodology used
UNIT-V	<p>Physical properties of liquids: Surface tension: its determination by using stalagmometer, parachor and chemical Constitution. Applications of parachors in deciding the structure of benzene and quinone. Effect of temperature on surface tension. Viscosity: Its determination by using Ostwald's viscometer. Effect of temperature on Viscosity. Refractive index: Its determination by using Abbe's refractometer, specific and molar Refractions.</p>	21 st November to 15 th December	06 hours	05 hour	Black board & chalk
UNIT-VI	<p>Thermodynamics-II: Physical significance of entropy. Free-energy-Helmholtz and Gibb's free energy and their relationship. Significance of free energy change, criteria for spontaneity and equilibrium. Numerical problems.</p>	16 th December to 10 th January	06 hours	06 hour	Black board & chalk
UNIT-VII	<p>Spectroscopy: Introduction: Electromagnetic radiations, regions of the spectrum, basic features of different Spectrometers, statement of the Born-Oppenheimer approximation, degrees of freedom. Rotational spectrum: Diatomic molecules: Energy levels of rigid rotors (Semi-classical principles), Selection rule, spectral intensity, distribution using population distribution (Maxwell-Boltzmann distribution). Determination of bond length, isotope effect.</p>	11 th February to 20 th January	06 hours	07 hour	Black board & chalk
	<p>Vibrational Spectrum: Infrared spectrum: Energy levels of simple harmonic oscillators, selection rule, pure Vibrational spectrum, intensity, determination of force constant and qualitative relation of force constant and bond energies</p>	21 st January to 05 th February	04 hours	05 hour	Black board & chalk

Signature of the Faculty

Signature of the HOD

Signature of the Principal

Head of the
Department of Chemistry
Smt ASM Degree College for Women
BELLARY

Principal
Smt. Allum Sumangamma Memorial
College for Women, Ballari-583103

SMT A.S.M. COLLEGE FOR WOMEN, BALLARI
DEPARTMENT OF CHEMISTRY
 TEACHING PLAN




Academic Year: **2021-2022**

Semester: **SIXTH SEMESTER (6.1)**

Name of the Faculty: **Dr. Bindu P J**

Course: **BSc.**

Unit No.	Title of the Chapter & Description	Period/ Month	No. Of Hours Allotted	Hours Taken/ Conducted	Teaching Pedagogy/ Methodology used
UNIT-I	Cement - Definition & composition of Portland cement, manufacture of Portland cement by Dry process, setting of cement, types of Portland cement & other types of cement. Cement Industries in India.	21 st November to 15 th December	06 hours	05 hour	Black board & chalk
UNIT-I	Glass - Definition & composition, physical properties, chemical properties, characteristics, Manufacture of glass by pot furnace method. Types of glasses.	16 th December to 10 th January	06 hours	06 hour	Black board & chalk
UNIT-II	Paints; Introduction, requirement of paints, constituents of paints, formation of paints, failure of paints films (reasons), emulsion paints, manufacture of white lead using Dutch process and uses.	11 th February to 20 th January	06 hours	07 hour	Black board & chalk
UNIT-II	Pigments; Red pigments, White pigments, Varnishes; Spirit and oil vanishes	21 st January to 05 th February	04 hours	05 hour	Black board & chalk


Signature of the Faculty


Signature of the HOD

Head of the
 Department of Chemistry
 Smt ASM Degree College for Womens
 BELLARY


Signature of the Princip
 Principal

Smt. Allum Sumangamma Memorial
 College for Women, Ballari-583103



V.V.SANGHA'S
Smt. A.S.M. COLLEGE FOR WOMEN, BALLARI
DEPARTMENT OF CHEMISTRY
TEACHING PLAN

Academic year: 2021-2022

Course: B.Sc.

Faculty: BASAVARAJ S H

Semester: SIXTH(6.2)

Unit No	Title of the Chapter& Description	Period/ Month	No of hours allotted	Hours taken /Conducted	Teaching pdagogy/ methodology used
V	Unit V: Synthetic Dyes and Drugs				
	Dyes – colour and constitution chromophore theory, electronic concept, classification of Dye based on applications and composition chemistry	04/05/22 To 16/05/22	01	02	BLACK BOARD AND CHALK
	Chemistry and synthesis of 1) Methyl orange. 2) Congo red 3) Malachite green	17/05/22 To 30/05/22	01	02	BLACK BOARD AND CHALK
	Chemistry and synthesis of 1) Crystal violet 2) Phenolphthalein. 3) Fluorocin,	31/05/22 To 13/06/22	01	03	BLACK BOARD AND CHALK
	Chemistry and synthesis of 1) Alizarin 2) Indigo	14/06/22 To 27/06/22	01	02	BLACK BOARD AND CHALK
	Drugs Elementary account of chemotherapy and chemotherapeutic agents, Antimalarials sulphadiazine and antibiotics.	28/06/22 To 11/07/22	01	02	BLACK BOARD AND CHALK
	Synthesis and uses of 1) Antipyrine, 2) Chloramine -T,	12/07/22 To 25/07/22	01	02	BLACK BOARD AND CHALK
	Synthesis and uses of 1) Sulpha thiozole, 2) Chloroquin 3) Sulphanilamide	26/07/22 To 22/08/22	02	04	BLACK BOARD AND CHALK

FACULTY

HOD

Head of the

Department of Chemistry

Smt. Allum Sumangalamma Memorial
Smt ASM Degree College for Womens College for Women, Ballari-583103

BELLARY

PRINCIPAL

V.V.SANGHA'S
Smt. A.S.M. COLLEGE FOR WOMEN, BALLARI
DEPARTMENT OF CHEMISTRY
TEACHING PLAN



Academic year: 2021-2022

Semester: Second

Course: B.Sc.


Faculty: BASAVARAJ S H

Unit No	Title of the Chapter & Description	Period/ Month	No of hours allotted	Hours taken /Conducted	Teaching pedagogy/ methodology used
I	Unit – 1 Bohr's theory, its limitations and atomic spectrum of hydrogen atom. Wave mechanics: de Broglie equation, Heisenberg's Uncertainty Principle and its significance, Schrödinger's wave equation, significance of ψ and ψ^2 . Quantum numbers and their significance.	04/05/22 TO 18/05/22	04	05	BLACK BOARD AND CHALK
	Normalized and orthogonal wave functions. Sign of wave functions. Radial and angular wave functions for hydrogen atom.	19/05/22 TO 01/06/22	03	04	BLACK BOARD AND CHALK
	Radial and angular distribution curves. Shapes of s, p, d and f orbitals. Contour boundary and probability diagrams	02/06/22 TO 09/06/22	03	03	BLACK BOARD AND CHALK
	Pauli's Exclusion Principle, Hund's rule of maximum multiplicity, Aufbau's principle and its limitations- Electronic configurations of the elements ($Z=1-30$), effective nuclear charge, shielding/screening effect, Slater's rules. Variation of effective nuclear charge in Periodic Table.	10/06/22 TO 29/06/22	04	05	BLACK BOARD AND CHALK
II	Unit – 2 s, p, d and f-block elements, the long form of periodic table. Detailed discussion of the following properties of the elements, with reference to s and p-block elements: (a) Atomic radii (van der Waals) (b) Ionic and crystal radii.	30/06/22 TO 12/07/22	03	04	BLACK BOARD AND CHALK
	Detailed discussion of the following properties of the elements, with reference to s and p-block elements: (c) Covalent radii (d) Ionization enthalpy, successive ionization enthalpies and factors affecting ionization Energy. Applications of ionization enthalpy	13/07/22 TO 21/07/22	03	04	BLACK BOARD AND CHALK
	e) Electron gain enthalpy, trends of electron gain enthalpy. (f) Electronegativity, Pauling's/ Mulliken's/ Allred Rachow's/ and Mulliken-Jaffe's electronegativity scales. Variation of electronegativity with bond order, partial charge,	22/07/22 To 10/07/22	04	05	BLACK BOARD AND CHALK

	hybridization, group electronegativity.				
	Trends in the chemistry of the compounds of groups 13 to 17 (hydrides, carbides, oxides and halides).	11/07/22 To 24/07/22	04	04	BLACK BOARD AND CHALK
	Unit – 3 Gaseous State Elementary aspects of kinetic theory of gases, Ideal and real gases. Boyle temperature (derivation not required). Molecular velocity, collision frequency, collision diameter, Collision cross section, collision number and mean free path coefficient of viscosity, calculation of σ and η , variation of viscosity with temperature and pressure	25/07/22 To 01/08/22	03	04	BLACK BOARD AND CHALK
	Maxwell's Boltzmann distribution law of molecular velocities (Most probable, average and root mean square velocities). Relation between RMS, average and most probable velocity and average kinetic energies. (Mathematical derivation not required), law of equipartition of energy	02/08/22 To 04/08/22	02	02	BLACK BOARD AND CHALK
III	Behaviour of real gases: Deviation from ideal gas behaviour. Compressibility factor (Z) and its variation with pressure for different gases. Causes of deviation from ideal behaviour, vander Waals equation of stat (No derivation) and application in explaining real gas behaviour.. Numerical problems.	05/08/22 To 17/18/22	02	03	BLACK BOARD AND CHALK
	Critical phenomena - Andrews isotherms of CO ₂ , critical constants and their calculation from van der Waals equation, Continuity of states, Law of corresponding states	18/08/22 To 24/08/22	01	02	BLACK BOARD AND CHALK




FACULTY


HOD

Head of the
Department of Chemistry
Smt ASM Degree College for Womens
BELLARY.


PRINCIPAL
Principal

Smt. Aluru Sumangamma Memorial
College for Women, Ballari-583103

V.V.SANGHA'S
Smt. A.S.M. COLLEGE FOR WOMEN, BALLARI
DEPARTMENT OF CHEMISTRY
TEACHING PLAN



Academic year: 2020-2021

Course: B.Sc

Name of the Faculty: Smt. Anjana.K

Semester: 5th

Unit No	Title of the Chapter & Description	Period/Month	No of hours allotted	Hours taken /Conducted	Teaching pdagogy/ methodology used
UNIT I	<u>Coordination Compounds:</u> Complex salts and double salts, Werner's theory of complexes. Sidwick theory of the EAN concept. Types of ligands-Monodentate(Cationic and anionic), Polydentate and ambidentate. Factors affecting the stability of complexes. Nomenclature of coordination compounds, geometrical isomerism of coordination compounds with CN 4 & 6.		8	10	Blackboard & Chalk
	<u>Bonding in coordination compounds :</u> Valence bond theory (VBT). Paulings assumptions, inner and outer orbital complexes with examples. Formation of the following complexes on the basis of VBT. [Cu(NH ₃) ₄] ²⁺ , [Ni(CN) ₄] ²⁻ , [Ni(CO) ₄]				
Unit II:	<u>Organic reagents in Inorganic Analysis:</u> Introduction, significance of organic reagents, properties and structure of DMG, EDTA, Oxine and orthophenanthroline. Application of each of the above reagents in inorganic qualitative and quantitative analysis		8	9	Blackboard & Chalk

FACULTY

(Smt. Anjana.K)

HOD
Head of the
Department of Chemistry
Smt ASM Degree College for Womens
BALLARI.

PRINCIPAL
PRINCIPAL
Smt. ASM College,
For Women, BALLARI.

V.V.SANGHA'S
Smt. A.S.M. COLLEGE FOR WOMEN, BALLARI
DEPARTMENT OF CHEMISTRY
TEACHING PLAN



Academic year: 2020-2021

Course: B.Sc

Name of the Faculty: Smt. Anjana.K

Semester: 2nd

Unit No	Title of the Chapter& Description	Period/Month	No of hours allotted	Hours taken /Conducted	Teaching pdagogy/ methodology used
UNIT I	<p>s-Block Elements: Alkali metals: Comparative study of properties of group IA elements. Physical properties, electronic configuration, atomic radius, softness, density, melting and boiling points, ionisation energy, electronegative character, oxidation state, flame colourisation and its cause. Chemical properties - reactivity of metals, action of air and water, hydrogen, halogens, formation of amalgams. Comparative study of properties of compounds of alkali metals such as oxides and peroxides, bicarbonates, hydroxides, carbonates, halides and nitrates</p>		8	10	Blackboard & Chalk
	<p>Alkaline Earth Metals: Comparative study of properties of Group IIA elements, properties, electronic configuration, melting and boiling points, softness, density, ionisation energy, hydration of ions, electropositive character, flame colouration and its causes. Comparative study of the properties of compounds such as oxides, hydroxides, bicarbonates, and carbonates, sulphates and halides (solubility, thermal decomposition, amphoteric and basic nature, reaction with water, formation of more soluble bicarbonates from carbonates, deliquescent property wherever applicable).</p>				
Unit II:	<p>p-Block Element: Comparative study of Boron family elements with respect to electronic configuration, atomic radius, ionisation energy and electron affinity. Diagonal relationship between boron and silicon. Preparation, properties, uses, and structure of diborane, borazole. Comparative study of Carbon family elements with respect to electronic configuration, atomic radius, ionisation energy, electron affinity. Structural features of diamond and graphite. Halogens: Structure of iodic acid and iodine pentoxide, pseudohalogens and interhalogens</p>		8	10	Blackboard & Chalk

V.V.SANGHA'S
Smt.A.S.M. COLLEGE FOR WOMEN, BALLARI
DEPARTMENT OF : CHEMISTRY
TEACHING PLAN



Academic Year : 2020-21


Course : B.Sc


Semester: I

Name of the Faculty : J.P.GOVIND

UNIT NO	Title of the Chapter & Description	Period/ month	No. of Hours Allotted	Hours Taken / Conducted	Teaching Pedagogy/ Methodology used
1.	<p><u>Gaseous State:</u> Critical Phenomena : PV isotherms of real gases, continuity of states, the isotherms of van der Waals equation, relationship between critical constants and van der Waals constants, the law of corresponding states, reduced equation of state. Molecular velocities : Root mean square, average and most probable velocities, Qualitative discussion of the Maxwell's distribution of molecular velocities, collision number, mean free path and collision diameter.</p>	08 Hrs	08 Hrs	10 Hrs	Black Board & Chalk
2.	<p><u>Liquid State:</u> Intermolecular forces, structure of liquids (a qualitative description), structural differences between solids, liquids and gases. Liquid crystals: Difference between liquid crystal, solid and liquid; Classification, structure of nematic and cholesteric phases. Solid State: Laws of crystallography a. Law of constancy of interfacial angles b. Law of rationality of indices c. Law of symmetry, symmetry elements in crystals X-ray diffraction by crystals, derivation of Bragg's equation, determination of crystal structure of NaCl</p>		08 Hrs	10 Hrs	Black Board & Chalk


FACULTY


HOD
Head of the
Department of Chemistry
Smt ASM Degree College for Womens
BALLARI.


PRINCIPAL
PRINCIPAL
Smt. ASM College
For Women, BALLARI.

V.V.SANGHA'S
Smt.A.S.M. COLLEGE FOR WOMEN, BALLARI
DEPARTMENT OF : CHEMISTRY
TEACHING PLAN



Academic Year : 2020-21


Semester: II


Course : B.Sc

Name of the Faculty : J.P.GOVIND

UNIT NO	Title of the Chapter & Description	Period/ month	No. of Hours Allotted	Hours Taken / Conducted	Teaching Pedagogy/ Methodology used
1.	<u>Nernst Distribution Law:</u> Statement and derivation, Modification of law when solute associates and dissociates in one of the solvents. Application of law to solvent extraction process. Numerical problems (Minimum five problems should solved).	08 Hrs	08 Hrs	10 Hrs	Black Board & Chalk
2.	<u>Liquid Mixtures:</u> Different types with examples, binary mixtures of completely miscible liquids - types with examples,. Raoult's law of vapour pressure. Vapour- composition and boiling point - composition curves for the above types. Principles of fractional distillation. Azeotropic mixtures, partially miscible liquids, critical solution temperatures with respect to phenol-water, nicotine-water and trimethyl amine-water systems.		08 Hrs	10 Hrs	Black Board & Chalk
3.	<u>Phase Equilibria:</u> Phase rule - definition and explanation of terms involved. Application to one component systems (water and sulphur system) and two component systems (lead-silver system and KI-H ₂ O system). Freezing mixtures.		08 Hrs	10 Hrs	Black Board & Chalk


FACULTY


HOD
Head of the
Department of Chemistry
Smt ASM Degree College for Womens
BELLARY.


PRINCIPAL
PRINCIPAL
Smt. ASM College
For Women, BALLARI.

V.V.SANGHA'S
Smt.A.S.M. COLLEGE FOR WOMEN, BALLARI
DEPARTMENT OF : CHEMISTRY
TEACHING PLAN



Academic Year : 2020-21


Semester: V


Course : B.Sc

Name of the Faculty : J.P.GOVIND

UNIT NO	Title of the Chapter & Description	Period/ month	No. of Hours Allotted	Hours Taken / Conducted	Teaching Pedagogy/ Methodology used
1.	<u>Electrochemistry</u> Conductance, specific, molar and equivalent and relation between them, Cell constant and determination of equivalent conductance. Variation of equivalent conductance with dilution. Kohlrausch law, ionic conductivity, ionic mobility and relation between them. Applications of conductance measurements i) Conductometric titrations-strong acid and a strong base, weak acid-strong base and mixtures of strong acid and weak acids against strong base ii) Equivalent conductance of weak electrolyte at infinite dilution.	08 Hrs	08 Hrs	10 Hrs	Black Board & Chalk
2.	<u>Catalysis</u> General characteristics of catalytic reactions, Acid-Base catalysis. Kinetics of acid-base catalysed reaction, mechanism of pH dependence of the rate constant of catalysed reaction. Autocatalysis and oscillatory reactions, Belousov-Zhabotinski reaction, a qualitative approach. The Brussellator and Originator models.		08 Hrs	10 Hrs	Black Board & Chalk


FACULTY


HOD
Head of the
Department of Chemistry
Smt ASM Degree College for Womens
BALLARI.


PRINCIPAL
PRINCIPAL
Smt. ASM College
For Women, BALLARI.

V.V.SANGHA'S
Smt.A.S.M. COLLEGE FOR WOMEN, BALLARI
DEPARTMENT OF : CHEMISTRY
TEACHING PLAN



Academic Year : 2020-21


Course : B.Sc


Name of the Faculty : J.P.GOVIND

Semester: VI

UNIT NO	Title of the Chapter & Description	Period/ month	No. of Hours Allotted	Hours Taken / Conducted	Teaching Pedagogy/ Methodology used
1.	<p><u>Colligative Properties</u> Colligative Properties- Semi permeable membrane, natural and artificial semi permeable membranes. Examples, preparation of copper ferrocyanide semipermeable membrane. Osmosis, osmotic pressure its determination by Berkley and Harley method. Theory of dilute solutions, laws of Osmotic pressure, molecular mass from osmotic pressure measurements. Isotonic solutions. Relative lowering of vapour pressure. Raoult's Law and it's derivation. Relation between relative lowering of vapour pressure and molecular mass (to be derived). Ostwalds and Walker method of determination of relative lowering of vapour pressure. Elevation of boiling point and its relationship to the lowering of vapour pressure and molar mass (to be derived using Clepeyron – Clausius equation). Ebullioscopic constant kb of the solvent and its relation to the boiling point and enthalpy of vapourisation of the solvent. Determination of molar mass of solute by ebullioscopic method (Landsbergers method).</p>	08 Hrs	08 Hrs	10 Hrs	Black Board & Chalk
2.	<p><u>Electromotive force</u> Electromotive force - Galvanic cells and electrode reaction. Measurement of EMF, Standard cell (Weston). Types of electrodes, sign convention of electrode potential (reduction potential is to be adopted), rules for representation of the cell. Nernst's equation of electrode potential (to be derived) E & E0 of the cell. Calculation of electrode potential, standard electrode potential, reference electrode. (a) Hydrogen electrode (b) Calomel electrode (c) Silver – Silver chloride electrode. Application of EMF measurements (I) Determination of Ph of a solution by using hydrogen electrode (II) Potentiometric titrations (a) Acid – base and (b) Redox titrations. Concentration cells with and without transference, liquid junction potential.</p>		08 Hrs	10 Hrs	Black Board & Chalk

FACULTY


 HOD
 Head of the
 Department of Chemistry
 Smt ASM Degree College for Womens
 BELLARY.


 PRINCIPAL
 PRINCIPAL
 Smt. ASM College
 For Women, BALLARI.

V.V.SANGHA'S
Smt.A.S.M. COLLEGE FOR WOMEN, BALLARI
DEPARTMENT OF : CHEMISTRY
TEACHING PLAN



Academic Year : 2019-20


Semester: I

Course : B.Sc

Name of the Faculty : J.P.GOVIND

UNIT NO	Title of the Chapter & Description	Period/ month	No. of Hours Allotted	Hours Taken / Conducted	Teaching Pedagogy/ Methodology used
1.	<p><u>Gaseous State:</u> Critical Phenomena : PV isotherms of real gases, continuity of states, the isotherms of van der Waals equation, relationship between critical constants and van der Waals constants, the law of corresponding states, reduced equation of state. Molecular velocities : Root mean square, average and most probable velocities, Qualitative discussion of the Maxwell's distribution of molecular velocities, collision number, mean free path and collision diameter.</p>	08 Hrs	08 Hrs	10 Hrs	Black Board & Chalk
2.	<p><u>Liquid State:</u> Intermolecular forces, structure of liquids (a qualitative description), structural differences between solids, liquids and gases. Liquid crystals: Difference between liquid crystal, solid and liquid; Classification, structure of nematic and cholesteric phases. Solid State: Laws of crystallography a. Law of constancy of interfacial angles b. Law of rationality of indices c. Law of symmetry, symmetry elements in crystals X-ray diffraction by crystals, derivation of Bragg's equation, determination of crystal structure of NaCl</p>		08 Hrs	10 Hrs	Black Board & Chalk


FACULTY


HOD
Head of the
Department of Chemistry
Smt. ASM Degree College for Womens
BALLARI.


PRINCIPAL
PRINCIPAL
Smt. ASM College
For Women, BALLARI.

V.V.SANGHA'S
Smt.A.S.M. COLLEGE FOR WOMEN, BALLARI
DEPARTMENT OF : CHEMISTRY
TEACHING PLAN



Academic Year : 2019-20

Course : B.Sc

Semester: II

Name of the Faculty : J.P.GOVIND

UNIT NO	Title of the Chapter & Description	Period/ month	No. of Hours Allotted	Hours Taken / Conducted	Teaching Pedagogy/ Methodology used
1.	<u>Nernst Distribution Law:</u> Statement and derivation, Modification of law when solute associates and dissociates in one of the solvents. Application of law to solvent extraction process. Numerical problems (Minimum five problems should solved).		08 Hrs	10 Hrs	Black Board & Chalk
2.	<u>Liquid Mixtures:</u> Different types with examples, binary mixtures of completely miscible liquids - types with examples,. Raoult's law of vapour pressure. Vapour- composition and boiling point - composition curves for the above types. Principles of fractional distillation. Azeotropic mixtures, partially miscible liquids, critical solution temperatures with respect to phenol- water, nicotine-water and trimethyl amine-water systems.	08 Hrs	08 Hrs	10 Hrs	Black Board & Chalk
3.	<u>Phase Equilibria:</u> Phase rule - definition and explanation of terms involved. Application to one component systems (water and sulphur system) and two component systems (lead-silver system and KI-H ₂ O system). Freezing mixtures.		08 Hrs	10 Hrs	Black Board & Chalk

FACULTY

HOD

Head of the
Department of Chemistry
Smt ASM Degree College for Womens
BELLARY.

PRINCIPAL
Smt. ASM College
For Women, BALLARI.

V.V.SANGHA'S
Smt.A.S.M. COLLEGE FOR WOMEN, BALLARI
DEPARTMENT OF : CHEMISTRY
TEACHING PLAN



Academic Year : 2019-20


Semester: V

Course : B.Sc

Name of the Faculty : J.P.GOVIND

UNIT NO	Title of the Chapter & Description	Period/ month	No. of Hours Allotted	Hours Taken / Conducted	Teaching Pedagogy/ Methodology used
1.	Electrochemistry Conductance, specific, molar and equivalent and relation between them, Cell constant and determination of equivalent conductance. Variation of equivalent conductance with dilution. Kohlrausch law, ionic conductivity, ionic mobility and relation between them. Applications of conductance measurements i) Conductometric titrations-strong acid and a strong base, weak acid-strong base and mixtures of strong acid and weak acids against strong base ii) Equivalent conductance of weak electrolyte at infinite dilution.	08 Hrs	08 Hrs	10 Hrs	Black Board & Chalk
2.	Catalysis General characteristics of catalytic reactions, Acid-Base catalysis. Kinetics of acid-base catalysed reaction, mechanism of pH dependence of the rate constant of catalysed reaction. Autocatalysis and oscillatory reactions, Belousov-Zhabotinski reaction, a qualitative approach. The Brussellator and Originator models.		08 Hrs	10 Hrs	Black Board & Chalk


FACULTY


HOD
Head of the
Department of Chemistry
Smt ASM Degree College for Womens
BELLARY.


PRINCIPAL
PRINCIPAL
Smt. ASM College
For Women, BALLARI.

V.V.SANGHA'S
Smt.A.S.M. COLLEGE FOR WOMEN, BALLARI
DEPARTMENT OF : CHEMISTRY
TEACHING PLAN



Academic Year : 2019-20

Semester: VI

Course : B.Sc

Name of the Faculty : J.P.GOVIND

UNIT NO	Title of the Chapter & Description	Period/ month	No. of Hours Allotted	Hours Taken / Conducted	Teaching Pedagogy/ Methodology used
1.	<p><u>Colligative Properties</u> Colligative Properties- Semi permeable membrane, natural and artificial semi permeable membranes. Examples, preparation of copper ferrocyanide semipermeable membrane. Osmosis, osmotic pressure its determination by Berkley and Harley method. Theory of dilute solutions, laws of Osmotic pressure, molecular mass from osmotic pressure measurements. Isotonic solutions. Relative lowering of vapour pressure. Raoult's Law and it's derivation. Relation between relative lowering of vapour pressure and molecular mass (to be derived). Ostwalds and Walker method of determination of relative lowering of vapour pressure. Elevation of boiling point and its relationship to the lowering of vapour pressure and molar mass (to be derived using Clepeyron – Clausius equation). Ebullioscopic constant k_b of the solvent and its relation to the boiling point and enthalpy of vapourisation of the solvent. Determination of molar mass of solute by ebullioscopic method (Landsbergers method).</p>	08 Hrs	08 Hrs	10 Hrs	Black Board & Chalk
2.	<p><u>Electromotive force</u> Electromotive force - Galvanic cells and electrode reaction. Measurement of EMF, Standard cell (Weston). Types of electrodes, sign convention of electrode potential (reduction potential is to be adopted), rules for representation of the cell. Nernst's equation of electrode potential (to be derived) E & E_0 of the cell. Calculation of electrode potential, standard electrode potential, reference electrode. (a) Hydrogen electrode (b) Calomel electrode (c) Silver – Silver chloride electrode. Application of EMF measurements (I) Determination of Ph of a solution by using hydrogen electrode (II) Potentiometric titrations (a) Acid – base and (b) Redox titrations. Concentration cells with and without transference, liquid junction potential.</p>		08 Hrs	10 Hrs	Black Board & Chalk

FACULTY

HOD

Head of the
Department of Chemistry
Smt ASM Degree College for Womens
BELLARY.

PRINCIPAL
PRINCIPAL
Smt. ASM College
For Women, BALLARI.

V.V.SANGHA'S
Smt. A.S.M. COLLEGE FOR WOMEN, BALLARI
DEPARTMENT OF CHEMISTRY
TEACHING PLAN



Academic year: 2019-2020

Course: B.Sc

Name of the Faculty: Smt. Anjana.K

Semester: 3rd

Unit No	Title of the Chapter& Description	Period/Month	No of hours allotted	Hours taken /Conducted	Teaching pdagogy/ methodology used
UNIT I	<u>Chemical bonding :</u> Ionic bond- Definition, factors influencing formation of ionic bond. Born-Haber cycle, calculation of lattice energy of an ionic solid like NaCl. Hydrogen bonding. Covalent bond- definition, Valenc Bond Theory (explanation without mathematical approach). Directional characteristics of covalent bond	5/5/2019 to 7/8/2019	8	10	Blackboard & Chalk
	Molecular orbital theory: An elementary idea of MOT, LCAO- Bonding and antibonding molecular orbitals. rules relating to filling up of electrons in molecular orbitals. Molecular orbital structure and bond order of species like Helium, Hydrogen, Nitrogen, Oxygen and Fluorine. Comparision of VBT and MOT.	13/8/19 to 6/9/19			
Unit II:	<u>Non -Aqueous Solvents :</u> Physical properties of solvents for functioning as an effective neutralization medium. Types of solvents and general characteristics. Reactions in non-aqueous solvents like liquid ammonia and liquid sulphur dioxide.	8/9/19 to 5/10/19	8	9	Blackboard & Chalk

FACULTY

(Smt.Anjana.K)

HOD

Head of the
Department of Chemistry
Smt ASM Degree College for Womens
BELLARY.

PRINCIPAL
PRINCIPAL
Smt. ASM College,
For Women, BALLARI.

V.V.SANGHA'S
Smt. A.S.M. COLLEGE FOR WOMEN, BALLARI
DEPARTMENT OF CHEMISTRY
TEACHING PLAN



Academic year: 2019-2020

Semester: 3rd

Course: B.Sc

Name of the Faculty: Smt. Anjana.K

Unit No	Title of the Chapter& Description	Period/Month	No of hours allotted	Hours taken /Conducted	Teaching pedagogy/ methodology used
UNIT VI	Chemical Kinetics : Second order reaction, derivation of second order rate equation when $a=b$, experimental methods of determination of order of reaction (differential, half and isolation methods).	6/7/2019 to 2/8/2019	4	5	Blackboard & Chalk
	Theory of reaction rates-qualitative treatment of collision theory of bimolecular reactions, theory of unimolecular reactions (Lindemann's hypothesis). An elementary account of transition state theory. Comparison of collision and transition state theory.	13/8/19 to 6/9/19	4	5	Blackboard & Chalk
Unit VII:	Thermodynamics-1 : First law of thermodynamics, enthalpy and its relation with internal energy molar heat capacities of gases (C_p and C_v) relation between them to be derived.	10/9/19 to 22/9/19	2	3	Blackboard & Chalk
	Expression for maximum work done during reversible, isothermal expansion of an ideal gas (to be derived) Joule-Thomson effect, Joule-Thomson coefficient, inversion temperature, numerical problems.	25/9/19 to 3/10/19	2	3	Blackboard, Chalk & Models
Unit VII:	Colloidal State: Electrical properties, stability of colloids, protective action, Hardy-Schulze law, Gold number. Liquids in liquids (emulsions): types of emulsion, preparation, emulsifiers. Liquids in solids (gels): Classification, preparation and properties, imbibition, general applications of colloids	11/10/19 to 21/10/19	4	5	Blackboard & Chalk

FACULTY

(Smt.Anjana.K)

HOD

Head of the
Department of Chemistry
Smt ASM Degree College for Womens
BALLARI.

PRINCIPAL

PRINCIPAL
Smt. ASM College,
For Women, BALLARI.

V.V.SANGHA'S
Smt. A.S.M. COLLEGE FOR WOMEN, BALLARI
DEPARTMENT OF CHEMISTRY
TEACHING PLAN



Academic year: 2019-2020

Course: B.Sc

Name of the Faculty: Smt. Anjana.K

Semester: 4th

Unit No	Title of the Chapter& Description	Period/Month	No of hours allotted	Hours taken /Conducted	Teaching pedagogy/ methodology used
UNIT VI	Thermodynamics-II : Second law of thermodynamics: Need for the law, different statements of second law, Carnot Cycle and its efficiency (to be derived). Entropy concept as a state function. Entropy changes of an ideal gas with change in volume and temperature, pressure and temperature (equations to be derived).	4/12/19 to 6/1/20	4	5	Blackboard & Chalk
	Calculation of entropy changes in reversible, isothermal, isobaric and isochoric processes. Physical significance of entropy. Free energy-Helmholtz and Gibb's Free energy and their relationship. Significance of free energy change, criteria for spontaneity and equilibrium. Numerical problems	8/1/20 to 25/1/20	4	5	Blackboard & Chalk
Unit VII:	Spectroscopy : Introduction: Electromagnetic radiations, regions of the spectrum, basic features of different spectrometers, statement of the Born-Oppenheimer approximation, degrees of freedom. Rotational spectrum: Diatomic molecules: Energy levels of rigid rotors (Semi-classical principles), Selection rule, spectral intensity.	28/1/20 to 16/2/20	4	5	Blackboard & Chalk
	distribution using population distribution (Maxwell-Boltzmann distribution). Determination of bond length, isotope effect. Vibrational Spectrum: Infrared spectrum: Energy levels of simple harmonic oscillators, selection rule, pure Vibrational spectrum, intensity, determination of force constant and qualitative relation of force constant and bond energies.	18/2/20 to 27/2/20	4	5	Blackboard, Chalk & Models
Unit V:	Physical properties of liquids : Surface tension: its determination by using stalagmometer, parachor and chemical constitution. Applications of parachors in deciding	3/3/20 to 29/3/20			

<p>Effect of temperature on surface tension. Viscosity: Its determination by using Ostwald's viscometer. Effect of temperature on viscosity. Refractive index: Its determination by using Abbe's refractometer, specific and molarrefractions.</p>		8	10	Blackboard & Chalk
--	--	---	----	-----------------------



Yes
 FACULTY

(Smt:Anjana.K)

HOD

Head of the
 Department of Chemistry
 Smt ASM Degree College for Womens
 BELLARY.

PRINCIPAL

PRINCIPAL
 Smt. ASM College,
 For Women, BALLARI.

V.V.SANGHA'S
Smt. A.S.M. COLLEGE FOR WOMEN, BALLARI
DEPARTMENT OF CHEMISTRY
TEACHING PLAN



Academic year: 2019-2020

Course: B.Sc

Name of the Faculty: Smt. Anjana.K

Semester: 6th

Unit No	Title of the Chapter& Description	Period/Month	No of hours allotted	Hours taken /Conducted	Teaching pdagogy/ methodology used
UNIT I	Analytical Chemistry: Introduction: Role of analytical chemistry. Classification of analytical methods- Classical and instrumental. Types of instruments analysis. Selecting an analytical method. Neatness and cleanliness.	12/12/19 to 16/1/19	8	10	Blackboard & Chalk
	Laboratory operation and practices. Analytical balance. Techniques of weighing errors, volumetric glass ware-cleaning and calibration of glass ware. Sample preparationdissolutions and decompositions . Safety in the Analytical Laboratory	18/1/19 to 2/2/19			Blackboard & Chalk
Unit II	Errors and Evaluation : Definition of terms in mean and median. Precision-standard deviation, relative standard deviation. Accuracy – absolute error, relative error. Types of error in experimental data, determinate (systematic) indeterminate (or random) and gross	4/2/19 to 25/2/19	8	9	Blackboard & Chalk
	Source of errors and their effects upon the analytical results. Methods for reporting analytica data. Statistical evaluation of data. Indeterminate errors. The use of statistics.	3/2/20 to 29/2/20			Blackboard, Chalk & Models

FACULTY
ee
(Smt.Anjana.K)

[Signature]
HOD
Head of the
Department of Chemistry
Smt ASM Degree College for Womens
BALLARI.

[Signature]
PRINCIPAL
PRINCIPAL
Smt. ASM College,
For Women, BALLARI.



V.V.Sangha's
SMT A.S.M. COLLEGE FOR WOMEN, BALLARI
DEPARTMENT OF CHEMISTRY
TEACHING PLAN

Academic Year: **2019-2020**

Semester: **SECOND SEMESTER**

Course: **BSc.**

Name of the Faculty: **Dr. Bindu P J**

Unit No.	Title of the Chapter & Description	Period/ Month	No. Of Hours Allotted	Hours Taken/ Conducted	Teaching Pedagogy/ Methodology used
Unit 1	<p>S-Block elements: Alkali metals: Comparative study of properties of group IA elements. Physical properties, electronic configuration, atomic radius, softness, density, melting and boiling points, ionisation energy, Electronegative character, oxidation state, flame colourisation and its cause. Chemical properties-reactivity of metals-action of air and water, hydrogen, halogens, formation of amalgams.</p> <p>Comparative study of properties of compounds of alkali metals such as oxides and peroxides, bicarbonates, hydroxides, carbonates, halides and nitrates.</p> <p>Explanation for anomalous behaviour of lithium and its compounds, diagonal relation between lithium and magnesium, causes for such relation with respect to hardness, high melting point boiling points, reaction with water, formation of nitrides, fluorides, solubility of chlorides, fluorides, bicarbonates, hydroxides and thermal decomposition of nitrates.</p> <p>Alkaline Earth Metals: Comparative study of properties of Group IIA elements, properties, electronic configuration, melting and boiling points, softness, density, ionisation energy. hydration of ions, electropositive character, flame colouration and its causes.</p> <p>Comparative study of the properties of compounds such as oxides, hydroxides, bicarbonates, and carbonates, sulphates and halides (Solubility, thermal decomposition, amphoteric and basic nature, reaction with water formation of more soluble bicarbonates from carbonates, deliquescent property wherever applicable).</p> <p>p-Block Element: Comparative study of Boron family elements with respect to electronic configuration, atomic radius, ionisation energy and electron affinity.</p>	21 st November to 15 th December	04 hour	04 hour	Black board & chalk
Unit 1	<p>p-Block Element: Diagonal relationship between boron and aluminium, preparation, properties, uses, and structure of diborane, borazole. Silicon. Comparative study of Carbon family elements with respect to electronic configuration, atomic radii, ionisation energy, electron affinity. Structural features of diamond and graphite. Halogens: Structure of iodic acid and iodine pentoxide, pseudohalogens and interhalogens.</p>	16 th December to 10 th January	04 hour	03 hour	Black board & chalk
Unit 2	Spectroscopy: Rotational spectrum: Diatomic molecules:				



V.V.Sangha's
SMT A.S.M. COLLEGE FOR WOMEN, BALLARI
DEPARTMENT OF CHEMISTRY
TEACHING PLAN

Academic Year: **2020-2021**

Semester: **THIRD SEMESTER**

Course: **BSc.**

Name of the Faculty: **Dr. Bindu P J**

Unit No.	Title of the Chapter & Description	Period/ Month	No. Of Hours Allotted	Hours Taken/ Conducted	Teaching Pedagogy/ Methodology used
	Chemical Kinetics: Second order reaction, derivation of 2nd order rate equation when $a = b$, experimental methods of determination of order of reaction (differential, half life and isolation methods). Theory of reaction rates - qualitative treatment of collision theory of bimolecular reactions, theory of unimolecular reactions (Lindemann's hypothesis). An elementary account of transition state theory.	1 st June to 1 st July	06 hours	05 hour	Black board & chalk
	First law of thermodynamics: Enthalpy, and its relation with internal energy Molar heat capacities of gases [C_p and C_v] relation between them (to be derived), Expression for maximum work done during reversible, isothermal expansion of an ideal gas (to be derived). Joule Thomson effect, Joule Thomson coefficient, inversion temperature, numerical problems.	2 nd July to 2 nd August	06 hours	06 hour	Black board & chalk
	Colloidal State: Electrical properties, stability of colloids, protective action, Hardy-Schulze law, Gold Number. Liquids in liquids (emulsions): types of emulsion, preparation, emulsifiers.	3 rd August to 3 rd September	06 hours	07 hour	Black board & chalk
	Liquids in solids (gels): Classification, preparation and properties, imbibition, general applications of colloids	4 th September to 24 th October	04 hours	05 hour	Black board & chalk

Signature of the Faculty

Signature of the HOD

Signature of the Principal
Principal

Head of the
Department of Chemistry
Smt ASM Degree College for Womens
BELLARY

Smt. Allum Sumangamma Memorial
College for Women, Ballari-583103

SMT A.S.M. COLLEGE FOR WOMEN, BALLARI
DEPARTMENT OF CHEMISTRY
 TEACHING PLAN



Academic Year: **2020-2021**
 Name of the Faculty: **Dr. Bindu P J**

Semester: **FIFTH SEMESTER**
 Course: **BSc.**

Unit No.	Title of the Chapter & Description	Period/ Month	No. Of Hours Allotted	Hours Taken/ Conducted	Teaching Pedagogy/ Methodology used
UNIT-V	Photochemistry: Interaction of radiation with matter, difference between thermal and Photochemical processes, laws of photochemistry Grothus Dropper law, Strak Einstein law. Joblonski diagram depicting various processes occurring in the excited state. Qualitative description of flourescence, phosphoresence, non-radioactive processes (internal conversion, inter system crossing), quantum yield, photosensitized reactions, energy transfer processes (simple examples).	1 st June to July 1 st	06 hours	05 hour	Black board & chalk
UNIT-VI	Physical Properties and Molecular Structure: Optical activity, polarization, (Clausius Mossotti equation). Orientation of dipoles in an electric field, dipole moment, induced dipolemoment, measurement of dipole moment temperature method and refractivity method, dipole moment and structure of molecules, magnetic properties paramagnetism, diamagnetism and ferromagnetism.	2 nd July to 2 nd August	06 hours	06 hour	Black board & chalk
	Chemistry of Newer Materials Conducting polymers: Introduction, definition and example – polyaniline, polyacetylene, Mechanism of conduction. Qualitative treatment of doping properties, elasticity with high Electrical conductivities. Engineering and biological applications. Superconductors: Introduction, definition, type 1, type 2 and preparation of high temperature, super conductor. $Y_1Ba_2Cu_3O_{x+d}$. B	3 rd August to 3 rd September	06 hours	07 hour	Black board & chalk
	Nanomaterials: Definition, properties, applications, carbon nano tubes, definition, types. Methods of prepration, properties and industrial applications of carbon nanotubes, Nanowires definition, types, production of crystalline nanowires by vapour – liquid – solid. synthesis method, applications of nanowires.	4 th September to 24 th October	04 hours	05 hour	Black board & chalk

Signature of the Faculty

Signature of the HOD

Signature of the Principal

Head of the
 Department of Chemistry
 Smt ASM Degree College for Women
 BELLARY

Principal
 Smt. Allum Sumangamma Memorial
 College for Women, Ballari-583103



V.V.Sangha's
SMT A.S.M. COLLEGE FOR WOMEN, BALLARI
DEPARTMENT OF CHEMISTRY
TEACHING PLAN

Academic Year: **2020-2021**

Name of the Faculty: **Dr. Bindu P J**

Semester: **SECOND SEMESTER**

Course: **BSc.**

Unit No.	Title of the Chapter & Description	Period/ Month	No. Of Hours Allotted	Hours Taken/ Conducted	Teaching Pedagogy/ Methodology used
UNIT-I	S-Block elements: Alkali metals: Comparative study of properties of group IA elements. Physical properties, electronic configuration, atomic radius, softness, density, melting and boiling points, ionisation energy, Electronegative character, oxidation state, flame colourisation and its cause. Chemical properties-reactivity of metals-action of air and water, hydrogen, halogens, formation of amalgams. Comparative study of properties of compounds of alkali metals such as oxides and peroxides, bicarbonates, hydroxides, carbonates, halides and nitrates.	21 st November to 15 th December	06 hours	05 hour	Black board & chalk
UNIT-II	Explanation for anomalous behaviour of lithium and its compounds, diagonal relation between lithium and magnesium, causes for such relation with respect to hardness, high melting point boiling points, reaction with water, formation of nitrides, flourides, solubility of chlorides, flourides, bicarbonates, hydroxides and thermal decomposition of nitrates.	16 th December to 10 th January	06 hours	06 hour	Black board & chalk
	Alkaline Earth Metals: Comparative study of properties of Group IIA elements, properties, electronic configuration, melting and boiling points, softness, density, ionisation energy. Hydration of ions, electropositive character, flame colouration and its causes. Comparative study of the properties of compounds such as oxides, hydroxides, bicarbonates, and carbonates, sulphates and halides (Solubility. thermal decomposition, amphoteric and basic nature, reaction with water formation of more soluble bicarbonates from carbonates, deliquescent property wherever applicable).	11 th Febraury to 20 th January	06 hours	07 hour	Black board & chalk
	P-Block Element: Comparative study of Boron family elements with respect to electronic configuration, atomic radius, ionisation energy and electron affinity. Diagonal relationship between boron and aluminium, preparation, properties, uses, and structure of diborane, borazole. Silicon. Comparative study of Carbon family clements with respect to electronic configuration, atomic radii, ionisation energy, electron affinity. Structural features of diamend and graphite. Halogens: Structure of iodic acid and Iodine pentoxide, Pseudohalogens and interhalogens.	21 st January 05 th Febraury	04 hours	05 hour	Black board & chalk

Signature of the Faculty

Signature of the HOD
Head of the

Department of Chemistry
Smt ASM Degree College for Women
BALLARI

Signature of the Principal
Principal

Smt. Allum Sumangamma Memorial
College for Women, Ballari-583103

V.V.Sangha's
SMT A.S.M. COLLEGE FOR WOMEN, BALLARI

DEPARTMENT OF CHEMISTRY

TEACHING PLAN



Academic Year: 2020-2021

Name of the Faculty: Dr. Bindu P J

Semester: **FOURTH SEMESTER**

Course: **BSc.**

Unit No.	Title of the Chapter & Description	Period/ Month	No. Of Hours Allotted	Hours Taken/ Conducted	Teaching Pedagogy/ Methodology used
UNIT-I	Nuclear Chemistry: Nuclear stability, n/p ratio and binding energy. Radioactive decay series, radioactive equilibrium, artificial transmutation of elements using protons, neutrons and their relative efficiency as projectiles.	21 st November to 15 th December	06 hours	05 hour	Black board & chalk
UNIT_II	D-Block Elements: Ionisation potential, variable oxidation states, magnetic property, colour and spectra Explanation with reference to 3d-series elements. f-Block Elements: Lanthanide series: Electronic configuration,	16 th December to 10 th January	06 hours	06 hour	Black board & chalk
UNIT_II	F-Block Elements: oxidation states, colour and spectra, magnetic properties, lanthanide contraction. Separation of lanthanides by ion exchange process	11 th February to 20 th January	06 hours	07 hour	Black board & chalk
UNIT I	Nuclear Chemistry: Induced radioactivity, radioactive isotopes and their uses in studying the mechanism of reactions. D-Block Elements: General characteristics of transition metals with respect to electronic configuration, atomic size.	21 st January to 05 th February	04 hours	05 hour	Black board & chalk

Signature of the Faculty

H. B. Shani

Signature of the HOD

Head of the
Department of Chemistry
Smt ASM Degree College for Women
BALLARI

Signature of the Principal

Smt. Allum Sumangamma Memorial
College for Women, Ballari-583103



V.V.Sangha's
SMT A.S.M. COLLEGE FOR WOMEN, BALLARI
DEPARTMENT OF CHEMISTRY
TEACHING PLAN

Academic Year: 2019-2020

Semester: **THIRD SEMESTER**

Course: **BSc.**

Name of the Faculty: **Dr. Bindu P J**

Unit No.	Title of the Chapter & Description	Period/ Month	No. Of Hours Allotted	Hours Taken/ Conducted	Teaching Pedagogy/ Methodology used
Unit 1	Physical Properties of Liquids: Surface tension: Its determination by using stalagmometer, parachor and chemical constitution. Applications of parachors in deciding the structure of benzene and quinone. Effect of temperature on surface tension. Viscosity: Its determination by using Ostwald's viscometer. Effect of temperature on viscosity. Refractive index: Its determination by using Abbe refractometer. Specific and molar refractions.	1 st June to July 1 st	06 hours	05 hour	Black board & chalk
Unit 1	Chemical Kinetics: Second order reaction, derivation of 2nd order rate equation when $a = b$, experimental methods of determination of order of reaction (differential, half life and isolation methods). Theory of reaction rates - qualitative treatment of collision theory of bimolecular reactions, theory of unimolecular reactions (Lindemann's hypothesis). An elementary account of transition state theory.	2 nd July to 2 nd August	06 hours	06 hour	Black board & chalk
Unit 2	First law of thermodynamics: Enthalpy, and its relation with internal energy Molar heat capacities of gases (C_p and C_v) relation between them (to be Derived), Expression for maximum work done during reversible, isothermal expansion of an ideal gas (to be derived).	3 rd August to 3 rd September	06 hours	07 hour	Black board & chalk
Unit 2	Joule Thomson effect, Joule Thomson coefficient, inversion temperature, numerical problems. Revision classes.	4 th September to 24 th October	04 hours	05 hour	Black board & chalk

Signature of the Faculty

Signature of the HOD

Head of the

Department of Chemistry

Smt ASM Degree College for Womens

BELLARY

Signature of the Principal

Principal

Smt. Allum Sumangalamma Memorial

College for Women



V.V.Sangha's
SMT A.S.M. COLLEGE FOR WOMEN, BALLARI

DEPARTMENT OF CHEMISTRY

TEACHING PLAN

Academic Year: **2019-2020**

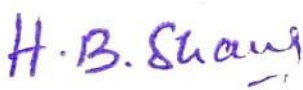
Semester: **FIFTH SEMESTER**


Course: **BSc.**

Name of the Faculty: **Dr. Bindu P J**

Unit No.	Title of the Chapter & Description	Period/ Month	No. Of Hours Allotted	Hours Taken/ Conducted	Teaching Pedagogy/ Methodology used
Unit 1	Photochemistry: Interaction of radiation with matter, difference between thermal and Photochemical processes, laws of photochemistry Grothus Dropper law, Strak Einstein law. Joblonski diagram depicting various processes occurring in the excited state.	1 st June to July 1 st	06 hours	05 hour	Black board & chalk
Unit 1	Physical Properties and Molecular Structure: Optical activity, polarization, (Clausius Mossotti equation). Orientation of dipoles in an electric field, dipole moment, induced dipolemoment, measurement of dipole moment temperature method and refractivity method, dipole moment and structure of molecules, magnetic properties paramagnetism, diamagnetism and ferromagnetism.	2 nd July to 2 nd August	06 hours	06 hour	Black board & chalk
Unit 2	Kinetics of Complex Reactions: Kinetics of Consecutive reactions Kinetics of Parallel reactions, Kinetics of Chain reactions, ferromagnetism, Kinetics of Reversible or Opposing reactions.	3 rd August to 3 rd September	06 hours	07 hour	Black board & chalk
Unit 2	Qualitative description of flourescence, phosphoresence, non-radioactive processes (internal conversion, inter system crossing), quantum yield, photosensitized reactions, energy transfer processes (simple examples).	4 th September to 24 th October	04 hours	05 hour	Black board & chalk


Signature of the Faculty


Signature of the HOD
Head of the
Department of Chemistry
Smt ASM Degree College for Womens
BELLARY.


Signature of the Principal
Principal
Smt. Allum Sumangamma Memorial
College for Women, Ballari-583103



V.V.Sangha's
SMT A.S.M. COLLEGE FOR WOMEN, BALLARI
DEPARTMENT OF CHEMISTRY
TEACHING PLAN


Academic Year: **2019-2020**

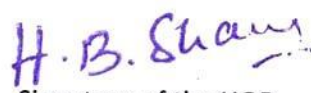
Name of the Faculty: **Dr. Bindu P J**


Semester: **FOURTH SEMESTER**

Course: **BSc.**

Unit No.	Title of the Chapter & Description	Period/ Month	No. Of Hours Allotted	Hours Taken/ Conducted	Teaching Pedagogy/ Methodology used
UNIT-I	Nuclear Chemistry: Nuclear stability, n/p ratio and binding energy. Radioactive decay series, radioactive equilibrium, artificial transmutation of elements using protons, neutrons and their relative efficiency as projectiles.	21 st November to 15 th December	06 hours	05 hour	Black board & chalk
UNIT-II	D-Block Elements: Ionisation potential, variable oxidation states, magnetic property, colour and spectra Explanation with reference to 3d-series elements. f-Block Elements: Lanthanide series: Electronic configuration,	16 th December to 10 th January	06 hours	06 hour	Black board & chalk
UNIT-II	F-Block Elements: oxidation states, colour and spectra, magnetic properties, lanthanide contraction. Separation of lanthanides by ion exchange process	11 th February to 20 th January	06 hours	07 hour	Black board & chalk
UNIT-I	Nuclear Chemistry: Induced radioactivity, radioactive isotopes and their uses in studying the mechanism of reactions. d-Block Elements: General characteristics of transition metals with respect to electronic configuration, atomic size.	21 st January 05 th February	04 hours	05 hour	Black board & chalk


Signature of the Faculty


Signature of the HOD
Head of the
Department of Chemistry
Smt ASM Degree College for Womens
BELLARY


Signature of the Principal
Principal
Smt. Alim Sumangamma Memorial
College for Women, Ballari-583103



	Energy levels of a rigid rotor (semi classical principles), selection rules, spectral intensity, distribution using population distribution (Maxwell - Boltzmann distribution), determination of bond length, qualitative description of non rigid rotor, isotope effect. Vibrational Spectrum: Infrared spectrum: Energy levels of simple harmonic oscillator, selection rules, pure vibrational spectrum, intensity, determination of force constant and qualitative relation of force constant and bond energies.	11 th February to 20 th January	04 hour	05 hour	Black board & chalk
Unit 2	Spectroscopy: Effect of an harmonic motion and isotope on the spectrum, Raman spectrum: Concept of polarizability, pure rotational and pure vibrational Raman spectra of diatomic molecules. Selection rules. Electronic spectra: Concept of potential energy curves for bonding and antibonding molecular orbitals, qualitative, description of selection rules and - Franck-Condon principle. Qualitative description of IR, and MO, their energy levels and the respective transitions	21 st January to 05 th February	04 hour	05 hour	Black board & chalk

H.B. Shani

Signature of the Faculty

Signature of the HOD
Head of the
Department of Chemistry
Smt ASM Degree College for Womens
BELLARY

Signature of the Principal

Principal
Smt. Allum Sumanlalamma Memorial
Smt. Allum Sumangalamma Memorial
College for Women, Ballari-583103

V.V.SANGHA'S
Smt.A.S.M. COLLEGE FOR WOMEN, BALLARI
DEPARTMENT OF : CHEMISTRY
TEACHING PLAN



Academic Year : 2018-19


Course : B.Sc


Name of the Faculty : J.P.GOVIND

Semester: I

UNIT NO	Title of the Chapter & Description	Period/ month	No. of Hours Allotted	Hours Taken / Conducted	Teaching Pedagogy/ Methodology used
1.	<p><u>Gaseous State:</u> Critical Phenomena : PV isotherms of real gases, continuity of states, the isotherms of van der Waals equation, relationship between critical constants and van der Waals constants, the law of corresponding states, reduced equation of state. Molecular velocities : Root mean square, average and most probable velocities, Qualitative discussion of the Maxwell's distribution of molecular velocities, collision number, mean free path and collision diameter.</p>	08 Hrs	08 Hrs	10 Hrs	Black Board & Chalk
2.	<p><u>Liquid State:</u> Intermolecular forces, structure of liquids (a qualitative description), structural differences between solids, liquids and gases. Liquid crystals: Difference between liquid crystal, solid and liquid; Classification, structure of nematic and cholesteric phases. Solid State: Laws of crystallography a. Law of constancy of interfacial angles b. Law of rationality of indices c. Law of symmetry, symmetry elements in crystals X-ray diffraction by crystals, derivation of Bragg's equation, determination of crystal structure of NaCl</p>		08 Hrs	10 Hrs	Black Board & Chalk


FACULTY


HOD
Head of the
Department of Chemistry
Smt ASM Degree College for Womens
BALLARI.


PRINCIPAL
PRINCIPAL
Smt. ASM College
For Women, BALLARI.

V.V.SANGHA'S
Smt.A.S.M. COLLEGE FOR WOMEN, BALLARI
DEPARTMENT OF : CHEMISTRY
TEACHING PLAN



Academic Year : 2018-19


Course : B.Sc

Semester: II

Name of the Faculty : J.P.GOVIND

UNIT NO	Title of the Chapter & Description	Period/ month.	No. of Hours Allotted	Hours Taken / Conducted	Teaching Pedagogy/ Methodology used
1.	<u>Nernst Distribution Law:</u> Statement and derivation, Modification of law when solute associates and dissociates in one of the solvents. Application of law to solvent extraction process. Numerical problems (Minimum five problems should solved).	08 Hrs	08 Hrs	10 Hrs	Black Board & Chalk
2.	<u>Liquid Mixtures:</u> Different types with examples, binary mixtures of completely miscible liquids - types with examples,. Raoult's law of vapour pressure. Vapour- composition and boiling point - composition curves for the above types. Principles of fractional distillation. Azeotropic mixtures, partially miscible liquids, critical solution temperatures with respect to phenol-water, nicotine-water and trimethyl amine-water systems.		08 Hrs	10 Hrs	Black Board & Chalk
3.	<u>Phase Equilibria:</u> Phase rule - definition and explanation of terms involved. Application to one component systems (water and sulphur system) and two component systems (lead-silver system and KI-H ₂ O system). Freezing mixtures.		08 Hrs	10 Hrs	Black Board & Chalk


FACULTY


HOD
Head of the
Department of Chemistry
Smt ASM Degree College for Womens
BALLARI.


PRINCIPAL
PRINCIPAL
Smt. ASM College
For Women, BALLARI.

V.V.SANGHA'S
Smt.A.S.M. COLLEGE FOR WOMEN, BALLARI
DEPARTMENT OF : CHEMISTRY
TEACHING PLAN



Academic Year : 2018-19


Course : B.Sc

Name of the Faculty : J.P.GOVIND

Semester: V

UNIT NO	Title of the Chapter & Description	Period/ month	No. of Hours Allotted	Hours Taken / Conducted	Teaching Pedagogy/ Methodology used
1.	<u>Electrochemistry</u> Conductance, specific, molar and equivalent and relation between them, Cell constant and determination of equivalent conductance. Variation of equivalent conductance with dilution. Kohlrausch law, ionic conductivity, ionic mobility and relation between them. Applications of conductance measurements i) Conductometric titrations-strong acid and a strong base, weak acid-strong base and mixtures of strong acid and weak acids against strong base ii) Equivalent conductance of weak electrolyte at infinite dilution.	08 Hrs	08 Hrs	10 Hrs	Black Board & Chalk
2.	<u>Catalysis</u> General characteristics of catalytic reactions, Acid-Base catalysis. Kinetics of acid-base catalysed reaction, mechanism of pH dependence of the rate constant of catalysed reaction. Autocatalysis and oscillatory reactions, Belousov-Zhabotinski reaction, a qualitative approach. The Brussellator and Originator models.		08 Hrs	10 Hrs	Black Board & Chalk


FACULTY


HOD
Head of the
Department of Chemistry
Smt ASM Degree College for Womens
BALLARI.


PRINCIPAL
PRINCIPAL
Smt. ASM College
For Women, BALLARI.



Faint text at the bottom left, possibly a date or reference number.

Faint text in the bottom center, possibly a name or title.

Faint handwritten or stamped text on the right side of the page.

V.V.SANGHA'S
Smt.A.S.M. COLLEGE FOR WOMEN, BALLARI
DEPARTMENT OF : CHEMISTRY
TEACHING PLAN



Academic Year : 2018-19


Semester: VI


Course : B.Sc

Name of the Faculty : J.P.GOVIND

UNIT NO	Title of the Chapter & Description	Period/ month	No. of Hours Allotted	Hours Taken / Conducted	Teaching Pedagogy/ Methodology used
1.	<p><u>Colligative Properties</u> Colligative Properties- Semi permeable membrane, natural and artificial semi permeable membranes. Examples, preparation of copper ferrocyanide semipermeable membrane. Osmosis, osmotic pressure its determination by Berkley and Harley method. Theory of dilute solutions, laws of Osmotic pressure, molecular mass from osmotic pressure measurements. Isotonic solutions. Relative lowering of vapour pressure. Raoult's Law and it's derivation. Relation between relative lowering of vapour pressure and molecular mass (to be derived). Ostwalds and Walker method of determination of relative lowering of vapour pressure. Elevation of boiling point and its relationship to the lowering of vapour pressure and molar mass (to be derived using Clepeyron – Clausius equation). Ebullioscopic constant k_b of the solvent and its relation to the boiling point and enthalpy of vapourisation of the solvent. Determination of molar mass of solute by ebullioscopic method (Landsbergers method).</p>	08 Hrs	08 Hrs	10 Hrs	Black Board & Chalk
2.	<p><u>Electromotive force</u> Electromotive force - Galvanic cells and electrode reaction. Measurement of EMF, Standard cell (Weston). Types of electrodes, sign convention of electrode potential (reduction potential is to be adopted), rules for representation of the cell. Nernst's equation of electrode potential (to be derived) E & E_0 of the cell. Calculation of electrode potential, standard electrode potential, reference electrode. (a) Hydrogen electrode (b) Calomel electrode (c) Silver – Silver chloride electrode. Application of EMF measurements (I) Determination of Ph of a solution by using hydrogen electrode (II) Potentiometric titrations (a) Acid – base and (b) Redox titrations. Concentration cells with and without transference, liquid junction potential.</p>		08 Hrs	10 Hrs	Black Board & Chalk

FACULTY


 HOD
Head of the
Department of Chemistry
Smt ASM Degree College for Womens
BELLARY.


 PRINCIPAL
PRINCIPAL
Smt. ASM College
For Women, BALLARI.



V.V.Sangha's
SMT A.S.M. COLLEGE FOR WOMEN, BALLARI
DEPARTMENT OF CHEMISTRY
TEACHING PLAN

Academic Year: **2018-2019**

Semester: **THIRD SEMESTER**

Course: **BSc.**

Name of the Faculty: **Dr. Bindu**

Unit No.	Title of the Chapter & Description	Period/ Month	No. Of Hours Allotted	Hours Taken/ Conducted	Teaching Pedagogy/ Methodology used
Unit 1	Physical Properties of Liquids: Surface tension: Its determination by using stalagmometer, parachor and chemical constitution. Applications of parachors in deciding the structure of benzene and quinone. Effect of temperature on surface tension. Viscosity: Its determination by using Ostwald's viscometer. Effect of temperature on viscosity.	1 st June to July 1 st	06 hours	05 hour	Black board & chalk
Unit 1	Refractive index: Its determination by using Abbe refractometer. Specific and molar refractions. Chemical Kinetics: Second order reaction, derivation of 2nd order rate equation when $a = b$, experimental methods of determination of order of reaction (differential, half life and isolation methods).	2 nd July to 2 nd August	06 hours	06 hour	Black board & chalk
Unit 2	Theory of reaction rates - qualitative treatment of collision theory of bimolecular reactions, theory of unimolecular reactions (Lindemann's hypothesis). An elementary account of transition state theory. Thermodynamics: first law of thermodynamics, enthalpy, and its relation with internal energy Molar heat capacities of gases [C_p and C_v] relation between them (to be derived),	3 rd August to 3 rd September	06 hours	07 hour	Black board & chalk
Unit 2	Expression for maximum work done during reversible, isothermal expansion of an ideal gas (to be derived). Joule Thomson effect, Joule Thomson coefficient, inversion temperature, numerical problems.	4 th September to 3 th October	04 hours	05 hour	Black board & chalk

Signature of the Faculty

Signature of the HOD

Signature of the Principal

Head of the
Department of Chemistry
Smt ASM Degree College for Womens
BALLARI.

Smt. Allum Sumangalamma Memorial
College for Women, Ballari-583103

V.V.Sangha's
SMT A.S.M. COLLEGE FOR WOMEN, BALLARI
DEPARTMENT OF CHEMISTRY
TEACHING PLAN



Academic Year: **2018-2019**

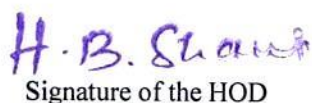
Semester: **V SEMESTER**

Course: **BSc.**

Name of the Faculty: **Dr. Bindu P J**

Unit No.	Title of the Chapter & Description	Period/ Month	No. Of Hours Allotted	Hours Taken / Conducted	Teaching Pedagogy/ Methodology used
Unit 1	Photochemistry: Interaction of radiation with matter, difference between thermal and Photochemical processes, laws of photochemistry Grothus Dropper law, Stark Einstein law. Joblonski diagram depicting various processes occuring in the excited state.	1 st June to July 1 st	06 hour	05 hour	Black board & chalk
Unit 1	Qualitative description of flourescence, phosphoresence, non-radioactive processes (internal conversion, inter system crossing), quantum yield, photosensitized reactions, energy transfer processes (simple examples). Physical Properties and Molecular Structure: Optical activity, polarization, (Clausius Mossotti equation).	2 nd July to 27 th August	04 hour	04 hour	Black board & chalk
Unit 2	Orientation of dipoles in an electric field, dipole moment, induced dipolemoment, measurement of dipole moment temperature method and refractivity method, dipole moment and structure of molecules, magnetic properties paramagnetism, diamagnetism and ferromagnetism.	28 th August to 27 th September	06 hour	05 hour	Black board & chalk
Unit 2	Kinetics of Complex Reactions: Kinetics of Consecutive reactions Kinetics of Parallel reactions, Kinetics of Chain reactions, ferromagnetism, Kinetics of Reversible or Opposing reactions.	28 th September to 4 th October	08 hour	07 hour	Black board & chalk


Signature of the Faculty


Signature of the HOD


Signature of the Principal
Principal

Head of the
Department of Chemistry
Smt ASM Degree College for Womens
BELLARY

Smt. Allum Sumangamma Memorial
College for Womens
BELLARY

V.V.Sangha's
SMT A.S.M. COLLEGE FOR WOMEN, BALLARI
DEPARTMENT OF CHEMISTRY
TEACHING PLAN



Academic Year: **2018-2019**

Semester: **Fourth SEMESTER**

Course: **BSc.**

Name of the Faculty: **Dr. Bindu P**

Unit No.	Title of the Chapter & Description	Period/ Month	No. Of Hours Allotted	Hours Taken/ Conducted	Teaching Pedagogy/ Methodology used
Unit 1	Thermodynamics-2. Second Law of Thermodynamics: Need for the Inw, different statements of second law, Camot cycle and its efficiency to bordered) Entropy concept as a stata function, Entropy changes of an ideal gas with change in volume and temperature, pressure and temperature (equations to lie dorived) Calculation of entropy changes in reversible isothermal, Isobauric and isochotic processes.	21 st November to 15 th December	04 hour	04 hour	Black board & chalk
Unit 1	Thermodynamics-2. Physical significance of entropy. Free-energy-Helmohitz and Gibb's free energy and their relationship. Significance of free energy change, criteria for spontaneity and equilibrium. Numerical problems. Spectroscopy: Introduction: Electromagnetic radiation, regions of the spectrum, basic features of different spectrometers, statement of the Boru-Capponholnar approximation, degrees of freedom.	16 th December to 10 th January	04 hour	03 hour	Black board & chalk
Unit 2	Spectroscopy: Rotational spectrum: Diatomic molecules: Energy levels of a rigid rotor (semi classical principles), selection rules, spectral intensity, distribution using population distribution (Maxwell - Boltzmann distribution), determination of bond length, qualitative discription of non rigid rotor, isotope effect. Vibrational Spectrum: Infrared spectrum: Energy levels of simple harmonic oscillator, selection rules, pure vibrational spectrum, tatonsity, determination of force constant and qualitative relation of force constant and bond energies.	11 th Febraury to 20 th Janyary	04 hour	05 hour	Black board & chalk
Unit 2	Spectroscopy: Effect of an harmonic motion and isotope on the spectrum, Raman spectrum: Concept of polarizability, pure rotational and pure vibrational Raman spectra of diatomic molecules. Selection rules. Electronic spectra: Concept of potential energy curves for bonding and antibonding molecular orbitals, qualitative, description of selection rules and - Franck-Condon principle. Qualitative description of ir, and MO, their energy lovals and the respective transitions	21 st Janaury to 05 th Febraury	04 hour	05 hour	Black board & chalk

Signature of the Faculty

Signature of the HOD

Signature of the Principal
Principal

Head of the
Department of Chemistry
Smt ASM Degree College for Womens
BELLARY

Smt. Allum Sumangamma Memorial
College for Women, Ballari-583103

V.V.Sangha's
SMT A.S.M. COLLEGE FOR WOMEN, BALLARI
DEPARTMENT OF CHEMISTRY
TEACHING PLAN



Academic Year: **2018-2019**

Semester: **SECOND SEMESTER**

Course: **BSc.**

Name of the Faculty: **Dr. Bindu P J**

Unit No.	Title of the Chapter & Description	Period/ Month	No. Of Hours Allotted	Hours Taken/ Conducted	Teaching Pedagogy/ Methodology used
Unit 1	<p>S-Block elements: Alkali metals: Comparative study of properties of group IA elements. Physical properties, electronic configuration, atomic radius, softness, density, melting and boiling points, ionisation energy, Electronegative character, oxidation state, flame colourisation and its cause. Chemical properties-reactivity of metals-action of air and water, hydrogen, halogens, formation of amalgams.</p> <p>Comparative study of properties of compounds of alkali metals such as oxides and peroxides, bicarbonates, hydroxides, carbonates, halides and nitrates.</p> <p>Explanation for anomalous behaviour of lithium and its compounds, diagonal relation between lithium and magnesium, causes for such relation with respect to hardness, high melting point boiling points, reaction with water, formation of nitrides, fluorides, solubility of chlorides, fluorides, bicarbonates, hydroxides and thermal decomposition of nitrates.</p> <p>Alkaline Earth Metals: Comparative study of properties of Group IIA elements, properties, electronic configuration, melting and boiling points, softness, density, ionisation energy. hydration of ions, electropositive character, flame colouration and its causes.</p> <p>Comparative study of the properties of compounds such as oxides, hydroxides, bicarbonates, and carbonates, sulphates and halides (Solubility, thermal decomposition, amphoteric and basic nature, reaction with water formation of more soluble bicarbonates from carbonates, deliquescent property wherever applicable).</p> <p>p-Block Element: Comparative study of Boron family elements with respect to electronic configuration, atomic radius, ionisation energy and electron affinity.</p>	21 st November to 15 th December	04 hour	04 hour	Black board & chalk
Unit 1	<p>p-Block Element: Diagonal relationship between boron and aluminium, preparation, properties, uses, and structure of diborane, borazole. Silicon. Comparative study of Carbon family elements with respect to electronic configuration, atomic radii, ionisation energy, electron affinity. Structural features of diamond and graphite. Halogens: Structure of iodic acid and iodine pentoxide, pseudohalogens and interhalogens.</p>	16 th December to 10 th January	04 hour	03 hour	Black board & chalk

Unit 2	Spectroscopy: Rotational spectrum: Diatomic molecules: Energy levels of a rigid rotor (semi classical principles), selection rules, spectral intensity, distribution using population distribution (Maxwell - Boltzmann distribution), determination of bond length, qualitative description of non rigid rotor, isotope effect. Vibrational Spectrum: Infrared spectrum: Energy levels of simple harmonic oscillator, selection rules, pure vibrational spectrum, intensity, determination of force constant and qualitative relation of force constant and bond energies.	11 th February to 20 th January	04 hour	05 hour	Black board & chalk
Unit 2	Spectroscopy: Effect of an harmonic motion and isotope on the spectrum, Raman spectrum: Concept of polarizability, pure rotational and pure vibrational Raman spectra of diatomic molecules. Selection rules. Electronic spectra: Concept of potential energy curves for bonding and antibonding molecular orbitals, qualitative, description of selection rules and - Franck-Condon principle. Qualitative description of ir, and MO, their energy levels and the respective transitions	21 st January to 05 th February	04 hour	05 hour	Black board & chalk



Signature of the Faculty

Signature of the HOD
 Head of the
 Department of Chemistry
 Smt ASM Degree College for Womens
 BELLARY

Signature of the Principal

Principal
 Smt. Allum Sumangamma Memorial
 College for Women, Bellary-583103