GOVT. DIGVIJAY AUTONOMOUS P.G. COLLEGE,

RAJNANDGAON (C.G.)

TEACHING PLAN

DEPARTMENT OF CHEMISTRY

2023-24

Govt. Digvijay Autonomous P.G. College, Rajnandgaon (C.G

Teaching-Plan

Class - M.Sc. Semester - I & III

Paper - P-1 U-3, P-4, U-1

Credits - 4

Month	Unit & Topic	Credit allotted	Period/ Hours Required
July	Admission Process		
August	Symmetry & Group Th. in Chemistry Introduction Sym. elements & operations. Definition of group. subgroup		4
September	Relation b/w order of finite group and its sub groups, conjugacy rela" and classes, point sym. group Schoffis symbols, Representa" of gp by matrices character of a representation GOT, Character table & its use in spectra.	4	5
October	Step wise & overall formation constants and their interaction, factors affecting the stability, Determina" of binary formation constants by pH metry and spectrophoto metry		4
November	Energy profile of a reaction, Reactivity of metal complexes, inert & Labil comp. Kinetic application of VBT & CFT		3
December	semester end exam		
~~January~~ Jan-Feb. March	Pericyclic Rxn = Mol. Orb sym. FO classification of Peri. Rxn, Woodward-Hoffman cor. diagram, FMO, PMO approach, Electrocyclic rxn - con & dis rotatory motion 4n, 4n+2 and allyl system, cycloaddition Supra-Antara facial 4n, 4n+2, 2+2 Ketene, Sigmatropic rearrangement Claisen, Cope and Aza cope rearrangement		2 6

Govt. Digvijay Autonomous P.G. College, Rajnandgaon (C.G.)

Teaching-Plan

Class - M.Sc. Sem. III and IV

Paper - P-1 U-4, P-2 U-4

Credits - 4

Month	Unit & Topic	Credit allotted	Period/ Hours Required
July August	Mass spectrometry - Introduction Ion production - EI, CL, FD, FAB, factors affecting fragmenta", Frag. Pattern, Molecular ion Peac, Base Peak, Metastable ion, McLafferty Rearr. Nitrogen Rule Common functional groups	4	3
September	High Resolution Mass spet. Examples of .... their structure determina"		4
October	Ion analysis ion abundance Carbohydrates -13 - General consider" chemical shift, coupling constant 2D NMR - COSY, NOESY		4
November	Carbohydrates :- classification based on physical property, chemical properties, functional group and reducing nature. Monosaccharides - chemistry of D-glucose & D-fructose, sources & isolation, Reactions of hydroxyl group, aldehyde groups, ketone group Miscellanous rxn of glucose, structural elucidation of glucose, Miscellaneous rxn of D-glucose & D-fructose Interconversion Aldose → ketose, Ketose → Aldose, Aldose → Higher aldose, Aldose → lower Aldose, Aldose → Higher ketose Disaccharides :- chemistry of sucrose, Lactose, Maltose, trehalose Polysaccharides - chemistry of starch, Cellulose, glycogen, chitin	4	4
Jan-Feb March	Photochemistry of Alkenes & Carbonyl compds Isomerisation, cyclization, Rearrangement of 1-4 and 1-5 dienes, Intramolecular rxn of Carbonyl compds		7
March-April May	Photo Fries and Barton Rxn Metal and Metal Chelates in Medicine Metal & disease, toxic effect of Metals, Metal chelates used for diagnosis, chemotherapy, Antibiotics - synthesis of Penicillin G, V, Ampicillin, Chloramphenicol, Amoxicillin		6

Rajnandgaon

Govt. Digvijay Autonomous P.G. College, Rajnandgaon (C.G.)

Teaching-Plan

Class - B.Sc. I and II Semester

Paper - DSC - Chemistry

Credits - 3 + 3

Month	Unit & Topic	Credit allotted	Period/ Hours Required
July Aug September	Admission Process Chemistry of Elements of Transition Sesies :- Characteristic prop. of d-block elements of 1st, 2nd & 3rd transin series, their binary compounds and complexes illustrating relative stability of their oxidation states, coordination number and geometry, magnetic behaviour.	3	2+3 5
October November Dec	Compounds of s & p-block elements Hydrides and their classification (ionic covalent & interstitial), structure and properties & respect to stability of hydrids concept of multicentre bonding-Borane Str, bonding and their important prop like ox/Red acids/basic nature of some compounds.		4+3+1
Jan Feb Masch	Stereochemistry - Conformation w.r.t ethane, butane and cyclohexane, Inter connession of Wedge, Newman, Sawhorse and Fisher representations. Concept of Chirality, Configuration, Geometrical and optical isomerism, Enatiomerism Diastereomerism & meso compounds, D/L, Cis/Trans, CIP, rules, E/Z nomenclature		4+4
March April May	Cycloalkanes & Conformational Analysis cycloalkane & Stability, Baeyer Strain Theory, Conformation Analysis Energy diagram of cyclohexane chair, Boat & Twist Boat forms Aromatic Hydrocarbons :- Aromaticity, Huckel's rule, Aromatic character of arenes, cyclic Carbo-Cations & anions and heterocyclic compds with suitable examples Electrophilic Aromatic sub, FC Rx.	3	5+5

Govt. Digvijay Autonomous P.G. College, Rajnandgaon (C.G.)

Teaching-Plan

Class - B.Sc. III and IV Semester

Paper - Chemistry - DSC

Credits - 3 + 3

Month	Unit & Topic	Credit allotted	Period/ Hours Required
July, August, September	Non-aqueous Solvents - Intro. Physical properties of a solvent, types of solvent and their general characteristics, Reaction in Non-aqueous solvents with reference to liq. NH_3, liq SO_2, HF, H_2SO_4 Ionic liquids, Supercritical fluids		3 + 3 + 5
October-November Dec	IONIC EQUILIBRIUM :- Strong, Moderate and weak electrolytes, degree of ionization, constant and ionic product of water. Ionization of weak acids and bases pH scale, Common ion effect, Dissociation constant of di, tri and mono protic acids.	3	4 + 3 + 1
Jan-Feb March	Cycloalkanes and Conformational Analysis. Cycloalkanes and stability, Baeyer strain theory, conformational analysis Energy diagram of cyclohexane, Chair, Boat and Twist Boat forms, conformation of Ethane, butane cyclohexane		5 + 3 + 4
March-April-May	Aromatic Hydrocarbons :- Aromaticity :- Huckel's Rule, Aromatic characters of arenes, cyclic carbocations and carbanions and heterocyclic compounds with suitable examples, Electrophillic aromatic substitution, halogination, nitration, sulphonation and Friedel Craft's alkylation/acylation with their mechanism, Directing effect of substituent groups	3	5 + 5

Total 30 Hrs

Govt. Digvijay Autonomous P.G. College, Rajnandgaon (C.G.)

Teaching-Plan

Class - B.Sc III and IV Semester

Paper - Chemistry - DSE

Credits - 3 + 3

Month	Unit & Topic	Credit allotted	Period/ Hours Required
July	Admission and subject Selection		2
August	Coordination Compounds - IUPAC Nom. Isomerism, Stereochemistry of complexes C.N. 4 & 6 coord. number, labile and Inert complexes, VBT (Inner & outer orbital complexes) Electroneutrality principle and back bonding, CFT - CFSE, measurment of 10Dq (Δ_o), CFSE in weak & strong fields, pairing energy, Factors affecting magnitude of 10Dq (Δ_o, Δ_t), Oh Vs Td coordination	3	4
September			4
September	Metal Ligand bonding in Trans. Metal Comp		
October	Limitations of valence bond		
November	theory, Limitations of CFT, App.		4 + 3 + 1
Dec	of CFSE tetragonal distortion from Oh geometry, Jahn-Teller distortion, Square planer geometry		
Jan-Feb	Arrhenius theory of electrolytic		
March	dissociation, Conductivity, equivalent and molar conductivity and their variation with dilution for weak and strong electrolytes. Molar conductivity at infinite dilution, Kohlrausch law of ind migration of ions	3	3 + 4
March			
April	Debye-Huckel-Onsager equation		5 + 5
May	Ionic velocities, mobilities and their determination, transference numbers and their relation to ionic mobilities determination of transference number using Hittorf and moving boundary method		

- Shedoms

Govt. Digvijay Autonomous P.G. College, Rajnandgaon (C.G.)

Teaching-Plan

Class - .....DSC - I sem B.Sc - I year (I sem)

Paper - .....DSC - I sem Industrial chemistry

Credits - 08

Month	Unit & Topic	Credit allotted	Period/ Hours Required
Agust	① metallurgical operations ② Basic metallurgical operations ③ Physico chemical principles of Extraction ④ Ancient Indian metallurgy	03	12
sep.	① Inorganic materials of Industrial importance	03	11
Oct.	① chemical Technology-I ② Distillation Instrument ③ Absorption Instruments	03	11
NOV.	① Chemical Technology-II ② Evaporation Instruments ③ Filtration Instruments	03/02	11
Dec.	① Chemical Technology-II ② Drying Instruments	03/01	
Keywords	Metallurgy, Ancient Indian Techniques, Extraction, Materials Distillation, separation, Processing		

Govt. Digvijay Autonomous P.G. College, Rajnandgaon (C.G.)

Teaching-Plan

Class - B.Sc - III semester Industrial Chemistry

Paper - DSC - III - sem (IC)

Credits - 04

Month	Unit & Topic	Credit allotted	Period/ Hours Required
Aguest	① material science ② metals and Alloys ③ cement ④ ceramic	04	15
Sep.	① Polymeric materials ② Industrial polymer ③ Chemical & physical Properties and Industrial Application	04	15
~~Nov.~~ oct.	① Glass ② corrosion	04	15
Nov	① pollution ② pollution evaluation methods ③ Air pollution	04/02	15/10
Dec	④ water pollution	04/02	15/5

Govt. Digvijay Autonomous P.G. College, Rajnandgaon (C.G.)

Teaching-Plan

Class - B.Sc - IV semestar (Industrial chemistry)

Paper - DSC - V - sem (IC)

Credits - 04

Month	Unit & Topic	Credit allotted	Period/ Hours Required
Agust	① Process instrumentation (Temperature) ② All type's of thermometer's ③ Industrial Uses.	04	15
sep.	① Process Instrumentation (Pressure) ② All type's of Pressure guge's.	04	15
oct.	① Liquid Level ② Direct & Indirect measurements.	04	15
Nov.	① All Importants Instruments – Bag Filter – electrostatic precipitator – mist eliminators	04	15/10
Dec.	② – wet scrubber's – absorber's – solid waste managments & Industrial Safety.	04	15/5

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Teaching-Plan

Class - B.Sc. – I sem

Paper - VAC

Credits - 02

Month	Unit & Topic	Credit allotted	Period/ Hours Required
NOV 24 Unit (3)	(1) Carbohydrates :- Structure, functions chemistry, some comp mono and disaccharide	02	
	(2) Vitamins :- Classification, Nomenculture Sources, deficiency diseases & structure Vitamin A/B/C/D/E/K	02	08
NOV 24 Unit (3)	(3) Dougs :- Nomenclature Analgesics Anthelmentic Antiallergic Antibiotics Anti inflammatory Antimicrobial	02	
NOV 24 Unit (3)	(4) Oil & fats	02	
	(5) Soaps & detergents		

TEACHING PLAN (2023-24).

Mrs Reema Sahu

B.Sc. I Sem

DSC-Chemistry (Inorganic Chemistry-I)

Session : 2023-24

S. No.	Month	Topics
1	August	**Atomic Structure** Review of: Bohrs theory and its limitations, dual behaviour of matter and radiation, de-Broglies relation, Heisenberg Uncertainty principle. Hydrogen atom spectra. What is Quantum mechanics? Time independent Schrodinger equation and meaning of various terms in it. Significance of ψ and ψ^2, Schrdinger equation for hydrogen atom.
2	September	Radial and angular parts of the hydogenic wave functions (atomic orbitals) and their variations for 1s, 2s, 2p, 3s, 3p and 3d orbitals (Only graphical representation). Significance of quantum numbers, orbital angular momentum and quantum numbers m_l and m_s. Shapes of s, p and d atomic orbitals, nodal planes. Discovery of spin, spin quantum number (s) and magnetic spin quantum number (ms). Rules for filling electrons in various orbitals, Electronic configurations of the atoms. Stability of half-filled and completely filled orbitals, concept of exchange energy. Relative energies of atomic orbitals, Anomalous electronic configurations.
3	October	**Chemical Bonding and Molecular Structure** Ionic Bonding: General characteristics of ionic bonding. Energy considerations in ionic bonding, lattice energy and solvation energy and their importance in the context of stability and solubility of ionic compounds. Statement of Born-Land equation for calculation of lattice energy, Born-Haber cycle and its applications, polarizing power and polarizability. Fajans rules, ionic character in covalent compounds, dipole moment and percentage ionic character. Covalent bonding:
4	November	VB Approach: Shapes of some inorganic molecules and ions on the basis of VSEPR and hybridization with suitable examples of linear, trigonal planar, square planar, tetrahedral, trigonal bipyramidal and octahedral arrangements. Concept of resonance and resonating structures in various inorganic and organic compounds. MO Approach: Rules for the LCAO method, bonding and antibonding MOs and their characteristics for s-s, s-p and p-p combinations of atomic orbitals, nonbonding combination of orbitals, Molecular orbital diagram of homonuclear diatomic molecules (N_2; O_2) and and heteronuclear diatomic molecules (CO, NO). Comparison of VB and MO approaches.

Mrs Reema Sahu

B.Sc. I Sem

GE- Chemistry (**General Inorganic Chemistry-I)**

Session : 2023-24

S. No.	Month	Topics
1	August	**Some Basic Concepts of Chemistry :** General Introduction: Importance and scope of chemistry. Historical approach to particulate nature of matter, laws of chemical combination, Dalton's atomic theory: concept of elements, atoms and molecules.
2	September	Atomic and molecular masses. Mole concept and molar mass; percentage composition and empirical and molecular formula; chemical reactions, stoichiometry and calculations based on stoichiometry.
3	October	**Structure of Atom :** Discovery of electron, proton and neutron; atomic number, isotopes and isobars. Thompson's model and its limitations, Rutherford's model and its limitations, Bohr's model and its limitations, concept of shells and subshells, dual nature of matter and light,
4	November	de Broglie's relationship, Heisenberg uncertainty principle, concept of orbitals, quantum numbers, shapes of s, p and d orbitals, rules for filling electrons in orbitals - Aufbau principle, Pauli exclusion principle and Hund's rule, electronic configuration of atoms, stability of half filled and completely filled orbitals.

Mrs Reema Sahu

B.Sc. II Sem

DSC-Chemistry (CHEMISTRY OF s, p & d-BLOCK ELEMENTS, STATES OF MATTER & CHEMICAL KINETICS**)**

Session : 2023-24

S. No.	Month	Topics
1	January	**s- and p-Block Elements** Periodicity in s- and p-block elements with respect to electronic configuration, atomic and ionic size, ionization enthalpy, electronegativity (Pauling & Mulliken scales). Allotropy in C, S, and P. Oxidation states with reference to elements in unusual and rare oxidation states like carbides and nitrides), inert pair effect, diagonal relationship and anomalous behaviour of first member of each group.
2	February	**Compounds of s- and p-Block Elements** Concept of multicentre bonding (diborane). Structure, bonding and their important properties like oxidation/reduction, acidic/basic nature of the following compounds and their applications in industrial, organic and environmental chemistry.
3	March	Hydrides of nitrogen (NH_3; N_2H_4; N_3H; NH_2OH) **Chemistry of elements of transition series** Characteristic properties of d-block elements.
4	April	Properties of elements of first, second & third transition series, their binary compounds and complexes illustrating relative stability of their oxidation states, coordination number and geometry, magnetic behavior, spectral properties and stereochemistry

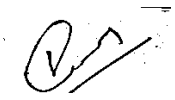
Mrs Reema Sahu

B.Sc. II Sem

DSC- Chemistry (**Organic Chemistry-I)**

Session : 2023-24

S. No.	Month	Topics
1	January	**Fundamentals of Organic Chemistry** Influence of hybridization on bond properties, Physical Effects, Electronic Displacements: Inductive Effect, Electromeric Effect, Resonance and Hyperconjugation. Cleavage of Bonds: Homolysis and Heterolysis.
2	February	Structure, shape and reactivity of organic molecules: Nucleophiles and electrophiles. Reactive Intermediates: Carbocations, Carbanions and free radicals. Strength of organic acids and bases: Comparative study with emphasis on factors affecting pK values. Aromaticity: Huckels rule.
3	March	**Stereochemistry:** Conformations with respect to ethane, butane and cyclohexane. Interconversion of Wedge Formula, Newmann, Sawhorse and Fischer representations. Concept of chirality (up to two carbon atoms).
4	April	Configuration: Geometrical and Optical isomerism; Enantiomers, Diastereomerism and Meso compounds). D and L; cis-trans nomenclature; CIP Rules: R/S (for one chiral carbon atoms) and E/Z Nomenclature (for up to two C=C systems).



Mrs Reema Sahu

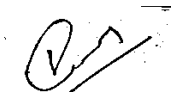
B.Sc. III Year

Paper - III (Physical Chemistry)

Session : 2023-24

S. No.	Month	Topics
1	August	**A Organometallic Compounds** Organo magnesium compounds: The Grignard Reagents- formation, structure and chemical reactions Organozinc compounds: formation and chemical reactions. Organolithium compounds: formation and chemical reactions. **B. Organosulphur** Compound Nomenclature, structural features, methods of formation and chemical reactions of thiols; thioethers, sulphonic acids, sulphonamides and sulphaguanidine. **C. Organic Synthesis via Enolates** Active methylene group alkylation of diethyl malonate and ethyl acetoacetate, Synthesis of ethyl acetoacetate; the Claisen Condensation. Keto-enol tautomerism of ethyl acetoacetate
2	September	. **BIOMOLECULES** **A Carbohydrates** Configuration of monosaccharides. Erythro and threo diastereomers. Formation of glycosides, ethers and esters. Determination of ring size of monosaccharides. Cyclic structure of D (+)- glucose. Structure of ribose and deoxyribose. An introduction to disaccharides (maltose, sucrose and lactose) and polysaccharides (starch and. cellulose) without involving structure determination. **B Protein and nucleic acid**: Classification and structure of proteins , levels of protein structure, protein denaturation/renaturation, constituents of amino acid, ribonucleosides and ribonucleotides and double helical structure of DNA
3	October	Synthetic polymers Addition or chain-growth polymerization. Free radical vinyl polymerization, Ziegler-Natta polymerization. Condensation or step growth polymerization. Polyesters, polyamides, phenol formaldehyde resins, urea formaldehyde resins, epoxy resins and polyurethanes. Natural and synthetic rubbers.

		B. Synthetic Dyes Colour and constitution (electronic concept). Classification of dyes. Chemistry of dyes. Chemistry and synthesis of Methyl orange, Congo red, Malachite green, Crystal violet, Phenolphthalein, Fluorescein, Alizarin and Indigo.
4	November	Spectroscopy-I A Mass spectroscopy: Mass spectrum, fragmentation of functional group. B Infrared spectroscopy: IR absorption band, their position and intensity, identification of IR spectra. C UV/Visible spectroscopy: Beer-Lambert law, effect of conjugation. λmax, visible spectrum and colour Anthocyanin as natural colouring matter (introduction only) Application of Mass; Infrared spectroscopy, Ultraviolet spectroscopy to organic molecules
5	December	. Spectroscopy-II: A NMR Spectroscopy: Introduction to NMR, shielding and number of signals in PMR, chemical shift and characteristics value, splitting of signals and coupling constants, application of Inorganic molecules.
6	January	. A 13 CMR spectroscopy: Principle and applications. B Magnetic resonance imaging (MRI): Introductory idea



Mrs Reema Sahu

M.Sc. I SEM

PAPER- II: Paper II (Reaction Mechanism)

Session : 2023-24

S. No.	Month	Topics
1	August	Addition to carbon – carbon multiple bonds Mechanistic and stereochemical aspects of addition reactions involving electrophiles, nucleophiles and free radicals
2	September	Addition to carbon – carbon multiple bonds regio- and chemo selectivity, orientation and reactivity. Hydrogenation of aromatic rings, hydrogenation of double and triple bonds.
3	October	Addition to Carbon-Hetero multiple bonds Mechanism of metal hydride reduction of saturated and unsaturated carbonyl compounds. Acids, esters and nitriles
4	November	Addition of Grignard reagent, organo zinc and organo lithium reagents to carbonyl and unsaturated carbonyl compounds, Wittig reaction. Mechanism of condensation reaction involving enolates – Claisen, Mannich, Benzoin, Perkin and Stobbe reactions.

Mrs Reema Sahu

M.Sc. II SEM

PAPER- II **:** organic chemistry

Session : 2023-24

S. No.	Month	Topics
1	January	**Rearrangements:** General mechanistic considerations – nature of migration, migratory aptitude, memory effects. A detailed study of the following rearrangements: Pinacol-pinacolone,
2	February	Wagner-Meerwein, Demjanov, Benzil-Benzilic acid, Favorskli, Arndt-Eistert synthesis, Neber, Beckmann, Hofman, Curtius, Schmidt, Baeyer-villiger, Shapiro reaction.
3	March	**Reagents** **Oxidation:** • Oxidation of hydrocarbons • Oxidation of alcohols • Oxidation of aldehydes and ketones
4	April	**Reduction:** • Catalytic hydrogenation • Reduction by dissolving metals • Reduction by hydride-transfer reagents

Mrs Reema Sahu

M.Sc. III SEM

PAPER- II Paper II (Biochemistry) & Paper III (Organotransition metal complexes

Session : 2023-24

S. No.	Month	Topics
1	August	. Bioorganic Chemistry Enzymes Chemical & Biological catalysis, remarkable properties of enzymes like catalytic power, specificity and regulation. Fisher's lock & key and koshland's induced fit theory, identification and labeling, Enzyme kinetics, Michaelis- Menten and Lineweaver-Burk plots, reversible & irreversible inhibition
2	September	. Mechanism of Enzyme Action Transition state theory, orientation & steric effect, acid - base catalysis. Covalent catalysis, strain or distortion complexes of some typical enzyme, mechanism for lysozyme & carboxypeptidase A
3	October	Stoichiometric reaction for catalysis, homogenous catalysis, hydrogenation, Zeigler- Natta polymerization of olefins
4	November	. catalytic reaction involving carbon monoxide such as hydro carbonylation of olefin (oxo reaction), oxypalladation reaction activation of C-H bonds

Mrs Reema Sahu

M.Sc. IV SEM

Paper – I SOLID STATE C CHEMISTRY

Session : 2023-24

S. No.	Month	Topics
1	January	, A. Solid state chemistry General principles, experiment procedures, co- precipitation as a precursor to solid state reaction, kinetics of solid chemistry
2	February	B. Crystal defects and non steicheometry - Perfect & imperfect crystal, intrinsic defects- point defects, line & plane defects. Thermodynamics of Schottky & Frenkel defects farmation. Colour centers, non- stoichiometry & defects.
3	March	Electronic properties & band theory- Metal, insulators & semiconductors, electronic structure of solid- baad theory, bond structure of metals, insulators semiconductors, intrinsic & extrinsic semiconductors doping semiconductors, p-n junction, superconductors
4	April	Photoconduction- photoelectric effects- Quantum theory of paramagnetic-domains, hysteresics

Govt. Digvijay Autonomous P.G. College, Rajnandgaon (C.G.)

Teaching-Plan

Class - B.Sc. 1sem Bio

Paper - DSC

Credits - 04

Month	Unit & Topic	Credit allotted	Period/ Hours Required
July -	Electronic effect in organic chemistry Bond cleavage, homolytic heterolytic cleavage Bond length, Bond Angle Bond lengthe Electron displacement-		
Aug.	Effect Inductive effect introduction of electromeric effect, mesomeric effect, Resonance, hyperconjugation and		
Sep.	Steric effect Tautomerism, Reaction intermediate formation stability carbocation, free Radical carbene, nitren & benzyne.		

Govt. Digvijay Autonomous P.G. College, Rajnandgaon (C.G.)

Teaching-Plan

Class - B.Sc. I sem. (Bio)

Paper - DSC

Credits - 04

Month	Unit & Topic	Credit allotted	Period/ Hours Required
October -	Stereochemistry of organic compounds Optical Isomer Element of symmetry Chirality enantiomers, Optical activity Chiral and achiral molecules		
Nov -	Stereogenic centre, Erythro and threo Diastereomers and meso compounds Inversion, Retention & Recemization Relation Configuration D/L & R/S		
Dec -	Geometrical Isomer Geometric Isomerism in Alkenes E/Z System of nomenclature		

Govt. Digvijay Autonomous P.G. College, Rajnandgaon (C.G.)

Teaching-Plan

Class - B.Sc. IV Th Sem

Paper - DSC

Credits - 04

Month	Unit & Topic	Credit allotted	Period/ Hours Required
July	Defination and classification of organometallic compends on the Basis of Bonding type		
Aug	concept of hapticity of ligand metal carbonyl, 18 e' Rule electron count		
Sep	a mononuclear and polynuclear and substituted metal carbonyl and 3rd series.		
Oct	General thermal and photochemical decomposition of mono and Binuclear carbonyl of 3d series		
Nov	structure of mono and binuclear carbonyl of Cr, Mn, Fe, Co, & Ni using VBT.		
Dec	π acceptor behavior of CO CMO diagram of CO to be discussed, Zeises salt preparation & structure.		

Govt. Digvijay Autonomous P.G. College, Rajnandgaon (C.G.)

Teaching-Plan

Class - B.Sc. IVth sem

Paper - .....

Credits - .....

Month	Unit & Topic	Credit allotted	Period/ Hours Required
July Aug Sep Oct Nov Dec	five membered heterocyclic compound with one heteroatom furan, pyrole & thiophenes general synthetic Approaches properties & Reactivities with two hetero atoms oxazoles, isoxazoles, imidazoles, thiazoles pyrazoles and Isothiazoles general synthetic approaches & Reactivities with three and four hetero atoms triazoles & Tetrazoles - synthetic approaches, properties and Reactivity.		

Govt. Digvijay Autonomous P.G. College, Rajnandgaon (C.G.)

Teaching-Plan

Class - M.Sc. IIIrd & IVth Sem

Paper - III & IV

Credits - .....

Month	Unit & Topic	Credit allotted	Period/ Hours Required
July	Organo metalic Compounds Classification		
August	Alkene complexes structure, bending, uses		
Sep	Arene, Allyl complexes structure, bonding, use		
oct.	Dienes, vinyl complex		
nov.	Alkyne complexes		
Dec.	cyclobutadiene, butadiene, cyclopenta diene complex		
	IVth sem		
Jan	Radiation chemistry		
Feb.	Radioactivity		

Govt. Digvijay Autonomous P.G. College, Rajnandgaon (C.G.)

Teaching-Plan

Class - M.Sc. Ist sem & IInd sem

Paper - I & IV

Credits - .....

Month	Unit & Topic	Credit allotted	Period/ Hours Required
July	Ist sem AAS, Principle, Technique		
August	Applications of AAS		
Sep	Instrumentation of AAS		
Oct.	AES Principle, Applicatio		
Nov.	Unifying Principle		
Dec.	EMR, Interaction, Spectros Born Openheimer Approx.		
Jan.	IInd sem Paper-I, Unit-III - Lanthanoids		
Feb.	- Actinoids		
March	- Electron Diffraction		
April	Paper-IV, Unit-IV - photoelectron spectroscopy - Photoacoustic spectroscopy - Electron Spin Resonance spectros		

Govt. Digvijay Autonomous P.G. College, Rajnandgaon (C.G.)

Teaching-Plan

Class - B.Sc. IV Sem

Paper - DSC & DSE (Physical chemistry)

Credits - 3 (DSC) & 3 (DSE)

Month	Unit & Topic	Credit allotted	Period/ Hours Required
Jan	Unit I DSC Aliphatic Hydro Carbons	3/4	14
	DSE. Electrochemistry		13
Feb	Unit II DSC - Cycloalkanes	3/4	11
	DSE - Chemical Cells		12
March	Unit III DSC - Aromatic Hydrocarbons	3/4	08
	DSE - Electrodes, EMF		10
April	Unit IV DSC Alkyl halides & Aryl halides	3/4	12
	DSE - Potentiometric titration		10

Govt. Digvijay Autonomous P.G. College, Rajnandgaon (C.G.)

Teaching-Plan

Class - B.Sc. III rd Sem

Paper - DSC & DSE (Inorganic chemistry)

Credits - .....

Month	Unit & Topic	Credit allotted	Period/ Hours Required
July	DSC → Unit-I, Liquid State DSE → Unit I Transition metal Chemistry	3/4	13 DSC 13 DSE
August	DSC → Unit-I, Surfactants DSE → Unit-II Coordination Compounds	3/4	12 DSC 12 DSE
Sept.	DSC → Unit-II, Ionic equilibria DSE → Unit III Metal-Ligand Bonding	3/4	12 DSC 10 DSE
Oct.	DSC → Unit-II, Electrolytes DSE → Unit, III, CFT	3/4	12 DSC 10 DSE
Nov.	DSC → Unit-III, Concept of acid-base DSE → Unit IV, CFSE	3/4	12 DSC 10 DSE
Dec.	DSC → Unit-IV, Non Aqueous Solvent DSE → Unit IV Magnetic Properties	3/4	8 DSC 10 DSE
Jan			
Feb			
March			
April			