

CHEMISTRY

SHREE GURU GOBIND SINGH JI GOVERNMENT COLLEGE, PAONTA SAHIB

**DEPARTMENT OF CHEMISTRY
TENTATIVE LESSON/ TEACHING PLAN**

CLASS: BSc First Year Course code: CHEM 101TH Course Title: ATOMIC STRUCTURE, BONDING, GENERAL ORGANIC CHEMISTRY & ALIPHATIC HYDROCARBONS Credits: 4					
DATE	SECTION	TOPICS COVERED	METHOD OF TEACHING	ASSESSMENT	REMARKS
August	Departmental induction meeting	Syllabus, Details of CCA(Continuous Comprehensive Assesment),Distribution of Marks, House Exam, Attendance Rules, Practicals . Laboratory rules and format of Final Exam to be conducted by HP University, Pass percentage in each component(CCA,PRACTICAL,THEOR Y) and overall Pass percentage and importance of Skill Enhancement Courses to be chosen by the student.	PPT's and Lecture method.		Queries from students are taken up during the induction session.
2 nd and 3 rd week of August	Fundamentals of Organic Chemistry SECTION C	Fundamentals of Organic Chemistry Physical Effects, Electronic Displacements: Inductive Effect, Electromeric Effect, Resonance and Hyperconjugation. Cleavage of Bonds: Homolysis and Heterolysis. 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: Benzenoids and Hückel's rule.	LECTURE AND PPT's By faculty members. Notes given through student was app group.	Weekly online/Offline test	Questions for Practice through wats app group.
4 th week of August	Atomic Structure SECTION -A	Review of Bohr's theory and its limitations, dual behaviour of matter and radiation, de Broglie's relation, Heisenberg Uncertainty principle. Hydrogen atom spectra. Need of a new approach to Atomic structure. Schrodinger wave equation and meaning of various terms in it. Significance of ψ and ψ^2 . Radial and angular nodes and their significance. Radial distribution functions and the concept of the most probable distance with special reference to 1s and 2s atomic orbitals. Significance of quantum numbers, Shapes of s, p and d atomic orbitals, nodal planes. 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. Slater rules and applications.	Group discussions	Presentation by students	Assignments for CCA on the topics to individual student through watsapp group.
1 st week of September	Chemical Bonding and Molecular Structure SECTION - B	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-Landé equation for calculation of lattice energy.	Basics of the topic through Lecture and PPT Method.	Practice questions in class for revision and in depth understanding.	Assignments for CCA to individual student and compulsory library consultation on

Amata JL
05/06/22
(Ami-7A 254)



Prof. Bhati
(POOJA BHATI)

Dr. MOHAN SINGH CHAUHAN
Principal
Shree Guru Gobind Singh Ji
Government College
Paonta Sahib
Dist. Sirmour (H.P.)-173025

		Born-Haber cycle and its applications, polarizing power and polarizability, Fajan's rules, ionic character in covalent compounds, bond moment, dipole moment and percentage ionic character. Covalent bonding- 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. MO treatment of homonuclear diatomic molecules up to Ne (including idea of s-p mixing) and heteronuclear diatomic molecules such as CO, NO and NO ⁺ . Comparison of VB and MO approaches.			allotted week day.
2 nd and 3 rd week of September	Stereochemistry SECTION - C	Stereochemistry Conformations with respect to ethane, butane and cyclohexane. Interconversion of Wedge Formula, Newman, Sawhorse and Fischer projections. Concept of chirality (upto two carbon atoms). Configuration: Geometrical and Optical isomerism; Enantiomerism, Diastereomerism and Meso compounds). Threo and erythro; D and L; cis - trans nomenclature; CIP Rules: R/ S (for upto 2 chiral carbon atoms) and E / Z Nomenclature (for upto two C=C systems).	Teaching through Lecture and PPT's With the aid of models and videos respectively	Question Answer session in the class /online mode	Practice questions from previous year question papers for homework
4 th week of September and 1 st week of October	Aliphatic Hydrocarbon SECTION - D	Functional group approach for the following reactions (preparations & reactions) to be studied in context to their structure. Alkanes: (Upto 5 Carbons). Preparation: Catalytic hydrogenation, Wurtz reaction, Kolbe's synthesis, from Grignard reagent, Reactions: Free radical Substitution: Halogenation. Alkenes: (Upto 5 Carbons) Preparation: Elimination reactions: Dehydration of alkenes and dehydrohalogenation of alkyl halides (Saytzeff's rule); cis alkenes (Partial catalytic hydrogenation) and trans alkenes (Birch reduction). Reactions: cis-addition (alk. KMnO ₄) and trans-addition (bromine), Addition of HX (Markownikoff's and antiMarkownikoff's addition), Hydration, Ozonolysis, oxymecuration-demercuration, Hydroboration-oxidation.	Lecture and Demonstration method.	Class Test in online and offline mode.	Class notes to be checked regularly.
2 nd and 3 rd week of October	Aliphatic Hydrocarbon SECTION - D	Alkynes: (Up to 5 Carbons) Preparation: Acetylene from CaC ₂ and conversion into higher alkynes; by dehalogenation of tetra halides and dehydrohalogenation of vicinal-dihalides. Reactions: Formation of metal acetylides, addition of bromine and	Lecture and Demonstration method.	Class Test in online and offline mode.	Class notes to be checked regularly.

Amrita Joshi
09/06/22
(AMITA JOSHI)



Pooja Bhati
(POOJA BHATI)

Dr. MOHAN SINGH CHAUHAN
Principal
Shree Guru Gobind Singh Ji
Government College
Paonta Sahib
Dist. Simour (H.P.)-173025

3/10

		alkaline KMnO ₄ , ozonolysis and oxidation with hot alkaline KMnO ₄ .			
4 th week of October	SECTION A SECTION B	Atomic Structure Chemical Bonding and Molecular Structure	Discussion of queries related to assignments.		
1 st week of November	SECTION A SECTION B	Atomic Structure Chemical Bonding and Molecular Structure			Collection and evaluation of Assignments of students given in the month of August.
2 nd and 3 rd week of November	SECTION C	Stereochemistry	Lecture and Group Discussion	Class Test	
4 th week of November	SECTION D	Aliphatic Hydrocarbon	Lecture and Group Discussion	Class Test	
DECEMBER : PREPARATION OF HOUSE EXAM AND CONDUCTION OF HOUSE EXAM					
WINTER BREAK					
February	SECTION A SECTION B	Atomic Structure Chemical Bonding and Molecular Structure	Lecture and Notes	To solve previous year University questions .	
March	SECTION C SECTION D	Stereochemistry Aliphatic Hydrocarbon	Lecture and Notes	To solve previous year University questions	
APRIL : FINAL ANNUAL PRACTICAL FOLLOWED BY PREPARATORY FOR THEORY EXAMINATION.					

Anita K. S. 28/1/22
(Anita J. S. 28/1/22)

Pooja Bhati
(POOJA BHATI)

Dr. MOHAN SINGH CHAUHAN
Principal
Shree Guru Gobind Singh Ji
Government College
Paonta Sahib
Dist. Sirmour (H.P.)-173025



SHREE GURU GOBIND SINGH JI GOVERNMENT COLLEGE, PAONTA SAHIB
DEPARTMENT OF CHEMISTRY
TENTATIVE LESSON/ TEACHING PLAN

4/10

CLASS: BSc First Year Course code: CHEM 101P Course Title: ATOMIC STRUCTURE, BONDING, GENERAL ORGANIC CHEMISTRY & ALIPHATIC HYDROCARBONS Credits: 2					
DATE	SECTION	TOPICS COVERED	METHOD OF TEACHING	ASSESSMENT	REMARKS
August	Departmental induction meeting	Syllabus, Details of CCA(Continuous Comprehensive Assessment), Distribution of Marks, House Exam, Attendance Rules, Practicals, Laboratory rules and format of Final Exam to be conducted by HP University, Pass percentage in each component(CCA,PRACTICAL,THEORY) and overall Pass percentage and importance of Skill Enhancement Courses to be chosen by the student.	PPT's and Lecture method.		Queries from students are taken up during the induction session.
2 nd and 3 rd week of August	BASIC UNDERSTANDING OF SAFE CHEMISTRY LABORATORIES	1. LABORATORY ETIQUETTES 2. SAFETY RULES 3. MSDS SYMBOLS 4. HAZARDOUS CHEMICALS 5. DISPOSAL OF CHEMICAL WASTE 6. ERRORS IN HANDLING OF APPARATUS. 7. FIRE EXTINGUISHERS 8. PREPARATION OF STANDARD SOLUTIONS	LECTURE AND PPT's By faculty members.		
4 th week of August	I. Inorganic Chemistry - Volumetric Analysis	BASICS OF VOLUMETRIC ANALYSIS Estimation of sodium carbonate and sodium hydrogen carbonate present in a mixture.	LECTURE METHOD FOLLOWED BY PRACTICAL DEMONSTRATION	Performance by students and results of the experiment	Observations and calculations are checked on the spot.
1 st week of September	Inorganic Chemistry - Volumetric Analysis	Estimation of oxalic acid by titrating it with KMnO ₄ . Estimation of water of crystallization in Mohr's salt by titrating with KMnO ₄ .	LECTURE METHOD FOLLOWED BY PRACTICAL DEMONSTRATION	Performance by students and results of the experiment	Observations and calculations are checked on the spot.
2 nd and 3 rd week of September	Inorganic Chemistry - Volumetric Analysis	Estimation of Fe (II) ions by titrating it with K ₂ Cr ₂ O ₇ using internal indicator. Estimation of Cu (II) ions iodometrically using Na ₂ S ₂ O ₃ .	LECTURE METHOD FOLLOWED BY PRACTICAL DEMONSTRATION	Performance by students and results of the experiment	Observations and calculations are checked on the spot.
4 th week of September and 1 st week of October	II. Organic Chemistry	Purification of organic compounds by crystallization (from water and alcohol) and distillation.	LECTURE METHOD FOLLOWED BY PRACTICAL DEMONSTRATION	Performance by students and results of the experiment	Observations and calculations are checked on the spot.
2 nd week of October	II. Organic Chemistry	Separation of mixtures by Chromatography: Measure of R _f value of a mixture of two organic compounds	LECTURE METHOD FOLLOWED	Performance by students and	Observations and calculations

1. Anurita Jind
09/09/22
(AM-1A Jind)

2. Pooja Bhati
(POOJA BHATI)



MS
Dr. MOHAN SINGH CHAUHAN
Principal
Shree Guru Gobind Singh Ji
Government College
Paonta Sahib
Dist. Simour (H.P.)-173025

			BY PRACTICAL DEMONSTRATION	results of the experiment	are checked on the spot.
3 rd and 4 th week of October	REVISION OF PRACTICALS FOR THE STUDENTS WHOSE EXPERIMENTAL RESULTS ARE NOT UPTO THE MARK.				
1 st week of November	VIVA AND FINAL CHECKING OF THE PRACTICAL NOTE BOOKS	Inorganic Chemistry - Volumetric Analysis Organic Chemistry			

8/10

1. Amrita Jind
05/08/22
(Ami TA ISS 11)

2. Pooja Bhati
(POOJA BHATI)



Dr. MOHAN SINGH CHAUHAN
Principal
Shree Guru Gobind Singh Ji
Government College
Paonta Sahib
Dist. Sirmour (H.P.)-173025



SHREE GURU GOBIND SINGH JI GOVERNMENT COLLEGE, PAONTA SAHIB

DEPARTMENT OF CHEMISTRY TENTATIVE LESSON/ TEACHING PLAN

6/10

CLASS: BSc First Year Course code: CHEM 102TH Course Title: STATES OF MATTER, CHEMICAL KINETICS & FUNCTIONAL ORGANIC CHEMISTRY Credits: 4					
DATE	SECTION	TOPICS COVERED	METHOD OF TEACHING	ASSESMENT	REMARKS
August	Departmental induction meeting	Syllabus, Details of CCA(Continuous Comprehensive Assessment), Distribution of Marks, House Exam, Attendance Rules, Practicals, Laboratory rules and format of Final Exam to be conducted by HP University, Pass percentage in each component(CCA,PRACTICAL,THEORY) and overall Pass percentage and importance of Skill Enhancement Courses to be chosen by the student.	PPT's and Lecture method.		Queries from students are taken up during the induction session.
2 nd and 3 rd week of August	Functional group approach for the following reactions (preparations & reactions) to be studied in context to their structure. SECTION C	Aromatic hydrocarbons Preparation (Case benzene): from phenol, by decarboxylation, from acetylene, from benzene sulphonic acid. Reactions: (Case benzene): Electrophilic substitution: nitration, halogenation and sulphonation. Friedel-Craft's reaction (alkylation and acylation) (upto 4 carbons on benzene). Side chain oxidation of alkyl benzenes (upto 4 carbons on benzene).	LECTURE AND PPT's By faculty members. Notes given through student wats app group.	Weekly online/Offline test	Questions for Practice through wats app group.
4 th week of August	Functional group approach for the following reactions (preparations & reactions) to be studied in context to their structure. SECTION C	Alkyl Halides (Upto 5 Carbons) Types of Nucleophilic Substitution (SN1, SN2 and SNi) reactions. Preparation: from alkenes and alcohols. 21 Reactions: hydrolysis, nitrite & nitro formation, nitrile & isonitrile formation, Williamson's ether synthesis. Aryl Halides Preparation: (Chloro, bromo and iodo-benzene case): from phenol, Sandmeyer & Gattermann reactions. Reactions (Chlorobenzene): Aromatic nucleophilic substitution (replacement by -OH group) and effect of nitro substituent. Benzyne Mechanism: KNH ₂ /NH ₃ (or NaNH ₂ /NH ₃). Reactivity and Relative strength of C-Halogen bond in alkyl, allyl, benzyl, vinyl and aryl halides.	Group discussions	Presentation by students	Assignments for CCA on the topics to individual student through watsapp group.
1 st week of September 2 nd week of September	SECTION - A Kinetic Theory of Gases	Postulates of Kinetic Theory of Gases and derivation of the kinetic gas equation. Deviation of real gases from ideal behaviour, compressibility factor, causes of deviation. van der Waals equation of state for real gases. Boyle temperature (derivation not required). Critical phenomena, critical constants and their calculation from van der Waals equation. Andrews isotherms of CO ₂ . Maxwell Boltzmann distribution laws of molecular velocities and molecular energies (graphic representation - derivation not required) and their importance. Temperature dependence of these distributions. Most probable, average and root mean square velocities (no derivation). Collision cross section, collision number, collision	Basics of the topic through Lecture and PPT Method.	Practice questions in class for revision and in depth understanding.	Assignments for CCA to individual student and compulsory library consultation on allotted week day.

1. Anula Jau
05/08/22
(AMITA JAU)



2. Pooja Bhati
(POOJA BHATI)

Dr. MOHAN SINGH CHAUHAN
Principal
Shree Guru Gobind Singh Ji
Government College
Paonta Sahib
Dist. Simour (H.P.)-173025

		frequency, collision diameter and mean free path of molecules. Viscosity of gases and effect of temperature and pressure on coefficient of viscosity (qualitative treatment only). Liquids Surface tension and its determination using stalagmometer. Viscosity of a liquid and determination of coefficient of viscosity using Ostwald viscometer. Effect of temperature on surface tension and coefficient of viscosity of a liquid (qualitative treatment only).			
3 rd week of September	SECTION - B Solids	Forms of solids, Symmetry elements, unit cells, crystal systems, Bravais lattice types and identification of lattice planes. Laws of Crystallography - Law of constancy of interfacial angles, Law of rational indices, Miller indices, X-Ray diffraction by crystals, Bragg's law. Structures of NaCl, KCl and CsCl (qualitative treatment only). Defects in crystals. Chemical Kinetics The concept of reaction rates. Effect of temperature, pressure, catalyst and other factors on reaction rates. Order and molecularity of a reaction. Derivation of integrated rate equations for zero, first and second order reactions (both for equal and unequal concentrations of reactants). Half-life of a reaction. General methods for determination of order of a reaction. Concept of activation energy and its calculation from Arrhenius equation. Theories of Reaction Rates: Collision theory and Activated Complex theory of bimolecular reactions. Comparison of the two theories (qualitative treatment only).	Basics of the topic through Lecture and PPT Method.	Practice questions in class for revision and in depth understanding.	Assignments for CCA to individual student and compulsory library consultation on allotted week day.
4 th week of September and 1 st week of October	SECTION - D Alcohols, Phenols and Ethers (Upto 5 Carbons)	Alcohols: Preparation: Preparation of 1 ^o , 2 ^o and 3 ^o alcohols: using Grignard reagent, Ester hydrolysis, Reduction of aldehydes, ketones, carboxylic acid and esters. Reactions: With sodium, HX (Lucas test), esterification, oxidation (with PCC, alk. KMnO ₄ , acidic dichromate, conc. HNO ₃). Oppeneauer oxidation Diols: (Upto 6 Carbons) oxidation of diols. Pinacol-Pinacolone rearrangement. Ethers (aliphatic and aromatic): Cleavage of ethers with HI. Aldehydes and ketones (aliphatic and aromatic): (Formaldehyde, acetaldehyde, acetone and benzaldehyde) Preparation: From acid chlorides and from nitriles. Reactions: Reaction with HCN, ROH, NaHSO ₃ , NH ₂ -G derivatives. Iodoform test, Aldol Condensation, Cannizzaro's reaction, Wittig reaction, Benzoin condensation, Clemensen reduction and Wolff Kishner reduction, Meerwein-Ponndorf Verley reduction. (Lecture and Demonstration method.	Class Test in online and offline mode.	Class notes to be checked regularly.
2 nd and 3 rd week of October	SECTION - D	Phenols: (Phenol case) Preparation: Cumene hydroperoxide method, from diazonium salts. Reactions: Electrophilic substitution: Nitration, halogenation and	Lecture and Demonstration method.	Class Test in online and offline mode.	Class notes to be checked regularly.

1. Anvita Jain
05/08/22
(Am/TA I sm)



2. Pooja Bhati
(POOJA BHATI)

Dr. MOHAN SINGH CHAUHAN
Principal
Shree Guru Gobind Singh Ji
Government College
Paonta Sahib
Dist. Sirmour (H.P.)-173025

		<p>sulphonation. Reimer - Tiemann Reaction, Gattermann-Koch Reaction, Houben-Hoesch Condensation, Schotten - Baumann reaction.</p> <p>Ethers (aliphatic and aromatic): Cleavage of ethers with HI. Aldehydes and ketones (aliphatic and aromatic): (Formaldehyde, acetaldehyde, acetone and benzaldehyde) Preparation: From acid chlorides and from nitriles. Reactions: Reaction with HCN, ROH, NaHSO₃, NH₂-G derivatives. Iodoform test. Aldol Condensation, Cannizzaro's reaction, Wittig reaction, Benzoin condensation. Clemensen reduction and Wolff Kishner reduction. Meerwein-Ponndorf Verley reduction</p>			
4 th week of October	SECTION A		Discussion related to queries of assignments		
1 st week of November	SECTION B				
	SECTION A	A Kinetic Theory of Gases			Collection and evaluation of Assignments of students given in the month of August.
	SECTION B	SOLIDS			
2 nd and 3 rd week of November	SECTION C	Functional group approach for the following reactions (preparations & reactions) to be studied in context to their structure. Alkyl and aryl halides.	Lecture and Group Discussion	Class Test	
4 th week of November	SECTION D	Alcohols, Phenols, Ethers	Lecture and Group Discussion	Class Test	
DECEMBER : PREPARATION OF HOUSE EXAM AND CONDUCTION OF HOUSE EXAM					
WINTER BREAK					
FEBRUARY	SECTION A	A Kinetic Theory of Gases	Lecture and Notes	To solve previous year University questions	
	SECTION B	SOLIDS			
MARCH	SECTION C	Functional group approach for the following reactions (preparations & reactions) to be studied in context to their structure. Alkyl and aryl halides	Lecture and Notes	To solve previous year University questions	
	SECTION D	Alcohols, Phenols, Ethers			
APRIL : FINAL ANNUAL PRACTICAL FOLLOWED BY PREPARATORY FOR THEORY EXAMINATION.					

1. Amrita Jishi
02/08/22
(Amrita Jishi)

2. Pooja Bhati
(POOJA BHATI)



Dr. MOHAN SINGH CHAUHAN
Principal
Shree Guru Gobind Singh Ji
Government College
Paonta Sahib
Dist. Simour (H.P.)-173025

SHREE GURU GOBIND SINGH JI GOVERNMENT COLLEGE PAONTA SAHIB

**DEPARTMENT OF CHEMISTRY
TENTATIVE LESSON/ TEACHING PLAN**

CLASS: BSc First Year Course code: CHEM 102P Course Title: STATES OF MATTER, CHEMICAL KINETICS & FUNCTIONAL ORGANIC CHEMISTRY Credits: 2					
DATE	SECTION	TOPICS COVERED	METHOD OF TEACHING	ASSESSMENT	REMARKS
August	Departmental induction meeting	Syllabus, Details of CCA(Continuous Comprehensive Assessment), Distribution of Marks, House Exam, Attendance Rules, Practicals, Laboratory rules and format of Final Exam to be conducted by HP University, Pass percentage in each component(CCA, PRACTICAL, THEORY) and overall Pass percentage and importance of Skill Enhancement Courses to be chosen by the student.	PPT's and Lecture method.		Queries from students are taken up during the induction session.
2 nd and 3 rd week of August	BASIC UNDERSTANDING OF SAFE CHEMISTRY LABORATORIES	1. LABORATORY ETIQUETTES 2. SAFETY RULES 3. MSDS SYMBOLS 4. HAZARDOUS CHEMICALS 5. DISPOSAL OF CHEMICAL WASTE 6. ERRORS IN HANDLING OF APPARATUS. 7. FIRE EXTINGUISHERS 8. PREPARATION OF STANDARD SOLUTIONS	LECTURE AND PPT's By faculty members.		
4 th week of August	I. Inorganic Chemistry Volumetric Analysis	BASICS OF VOLUMETRIC ANALYSIS Estimation of sodium carbonate and sodium hydrogen carbonate present in a mixture.	LECTURE METHOD FOLLOWED BY PRACTICAL DEMONSTRATION	Performance by students and results of the experiment	Observations and calculations are checked on the spot.
1 st week of September	Inorganic Chemistry Volumetric Analysis	Estimation of oxalic acid by titrating it with $KMnO_4$. Estimation of water of crystallization in Mohr's salt by titrating with $KMnO_4$.	LECTURE METHOD FOLLOWED BY PRACTICAL DEMONSTRATION	Performance by students and results of the experiment	Observations and calculations are checked on the spot.
2 nd and 3 rd week of September	Inorganic Chemistry Volumetric Analysis	Estimation of Fe (II) ions by titrating it with $K_2Cr_2O_7$ using internal indicator. Estimation of Cu (II) ions iodometrically using $Na_2S_2O_3$.	LECTURE METHOD FOLLOWED BY PRACTICAL DEMONSTRATION	Performance by students and results of the experiment	Observations and calculations are checked on the spot.
4 th week of September and 1 st week of October	II. Organic Chemistry	Purification of organic compounds by crystallization (from water and alcohol) and distillation.	LECTURE METHOD FOLLOWED BY PRACTICAL DEMONSTRATION	Performance by students and results of the experiment	Observations and calculations are checked on the spot.
2 nd week of October	II. Organic Chemistry	Separation of mixtures by Chromatography: Measure of R_f value of a mixture of two organic compounds	LECTURE METHOD FOLLOWED BY	Performance by students and results of	Observations and calculations

1. Ananta Lal
09/08/22
(AMRITA LAL)



2. Pooja Bhati
(POOJA BHATI)


Dr. MOHAN SINGH CHAUHAN
Principal
Shree Guru Gobind Singh Ji
Government College
Paonta Sahib
Dist. Simour (H.P.)-173025

		PRACTICAL DEMONSTRATION	the experiment	are checked on the spot.
3 rd and 4 th week of October	REVISION OF PRACTICALS FOR THE STUDENTS WHOSE EXPERIMENTAL RESULTS ARE NOT UPTO THE MARK.			
1 st week of November	VIVA AND FINAL CHECKING OF THE PRACTICAL NOTE BOOKS	Inorganic Chemistry - Volumetric Analysis Organic Chemistry		

10/10

Anula Jassi
07.10/20
(Anula Jassi)

Pooja Bhati
(POOJA BHATI)


Dr. MOHAN SINGH CHAUHAN
Principal
Shree Guru Gobind Singh Ji
Government College
Paonta Sahib
Dist. Sirmour (H.P.)-173025



SHREE GURU GOBIND SINGH JI GOVERNMENT COLLEGE, PAONTA SAHIB
DEPARTMENT OF CHEMISTRY

TENTATIVE LESSON/TEACHING PLAN

Y13

CLASS: BSc Second Year Course code: CHEM 201 TH CREDIT :4 Course Title: SOLUTIONS, PHASE EQUILIBRIUM, CONDUCTANCE, ELECTROCHEMISTRY & ORGANIC CHEMISTRY					
DATE	SECTION	TOPICS COVERED	METHOD OF TEACHING	ASSESSMENT	REMARKS
August	Departmental induction meeting For students opting Chemistry as SEC in second Year	Syllabus, Details of CCA (Continuous Comprehensive Assessment), Distribution of Marks, House Exam, Attendance Rules, Practicals, Laboratory rules and format of Final Exam to be conducted by HP University, Pass percentage in each component(CCA,PRACTICAL,THEORY) and overall Pass percentage and importance of Skill Enhancement Courses to be chosen by the student.	PPT's and Lecture method.		Queries from students are taken up during the induction session.
2 nd and 3 rd week of August	SECTION - A Solutions	Thermodynamics of ideal solutions: Ideal solutions and Raoult's law. deviations from Raoult's law – non-ideal solutions. Vapour pressure-composition and temperature composition curves of ideal and non-ideal solutions. Distillation of solutions. Lever rule. Azeotropes. Partial miscibility of liquids: Critical solution temperature: effect of impurity on partial miscibility of liquids. Nernst distribution law and its applications, solvent extraction. Phase Equilibrium Phases, components and degrees of freedom of a system, criteria of phase equilibrium. Gibbs Phase Rule and its thermodynamic derivation. Derivation of Clausius – Clapeyron equation and its importance in phase equilibria. Phase diagrams of one-component systems (water and sulphur) and two component systems involving eutectics, congruent and incongruent melting points (lead-silver, NaCl-H ₂ O and Mg-Zn only).	LECTURE AND PPT's By faculty members. Notes given through student wats app group.	Weekly online/Offline test	Questions for Practice through wats app group.
4 th week of August	SECTION – C Functional group approach for the following reactions (preparations & reactions) to be studied in context to their structure.	Carboxylic acids (aliphatic and aromatic) - Preparation: Acidic and Alkaline hydrolysis of esters. Reactions: Hell – Vohlar - Zelinsky Reaction. Carboxylic acid derivatives (aliphatic): (Upto 5 carbons) - Preparation: Acid chlorides, Anhydrides, Esters and Amides from acids and their inter conversion. Reactions: Comparative study of nucleophilicity of acyl derivatives. Reformatsky Reaction, Perkin condensation	Lecture Method	Presentation by students	Assignments related to Name reactions for CCA to individual student through watsapp group.
1 st week of September	SECTION - D Carbohydrates:	Classification, and General Properties. Glucose and Fructose (open chain and cyclic structure), Determination of configuration of monosaccharides, absolute configuration of Glucose and Fructose. Mutarotation, ascending and descending in monosaccharide. Structure of disaccharides (sucrose, maltose, lactose) and polysaccharides (starch and	Basics of the topic through Lecture and PPT Method correlating with Practical work.	Practice questions in class for revision and in depth understanding.	Assignments for CCA to individual student and compulsory library consultation on allotted week day.



1. Anita Tish
05/09/22
(ANITA TISH)

2. Pooja Bhati
(POOJA BHATI)

Dr. MOHAN SINGH CHAUHAN
Principal
Shree Guru Gobind Singh Ji
Government College
Paonta Sahib
Dist. Sirmour (H.P.)-173025

2/13

		cellulose) excluding their structure elucidation.			
3 rd week of September	SECTION – C Functional group approach for the following reactions (preparations & reactions) to be studied in context to their structure.	. Amines and Diazonium Salts Amines (Aliphatic and Aromatic): (Upto 5 carbons - Preparation: from alkyl halides, Gabriel's Phthalimide synthesis, Hofmann Bromamide reaction. Reactions: Hofmann vs. Saytzeff elimination, Carbylamine test, Hinsberg test, reaction with HNO ₂ , Schotten – Baumann Reaction, Electrophilic substitution (case aniline): nitration, bromination, sulphonation, Diazonium salts: Preparation: from aromatic amines. Reactions: conversion to benzene, phenol, dyes.	Basics of the topic through Lecture and PPT Method.	Practice questions in class for revision and in depth understanding.	Assignments for CCA to individual student and compulsory library consultation on allotted week day.
4 th week of September and 1 st week of October	SECTION - B Conductance and Electrochemistry	Conductance Conductivity, equivalent and molar conductivity and their variation with dilution for weak and strong electrolytes. Kohlrausch law of independent migration of ions. Transference number and its experimental determination using Hittorf and Moving boundary methods. Ionic mobility. Applications of conductance measurements: determination of degree of ionization of weak electrolyte, solubility and solubility products of sparingly soluble salts, ionic product of water, hydrolysis constant of a salt, Conductometric titrations (only acid base).	Lecture and Demonstration method.	Class Test in online and offline mode.	Class notes to be checked regularly.
2 nd and 3 rd week of October	SECTION - B Conductance and Electrochemistry	Electrochemistry Reversible and irreversible cells. Concept of EMF of a cell. Measurement of EMF of a cell. Nernst equation and its importance. Types of electrodes. Standard electrode potential, Electrochemical series. Thermodynamics of a reversible cell, calculation of thermodynamic properties: ΔG, ΔH and ΔS from EMF data. Calculation of equilibrium constant from EMF data. Concentration cells with transference and without transference. Liquid junction potential and salt bridge. pH determination using hydrogen electrode and quinhydrone electrode.	Lecture and Demonstration method.	Class Test in online and offline mode.	Class notes to be checked regularly.
4 th week of October	SECTION C	Functional group approach for the following reactions (preparations & reactions) to be studied in context to their structure.	Discussion related to queries of assignments		
	SECTION D	Carbohydrates			
1 st week of November	SECTION C	Functional group approach for the following reactions (preparations & reactions) to be studied in context to their structure.			Collection and evaluation of Assignments of students given in the month of August.
	SECTION D	Carbohydrates			
2 nd and 3 rd week of November	SECTION A	Solutions	Lecture and Group Discussion	Class Test	
4 th week of November	SECTION B	Conductance and Electrochemistry	Lecture and Group Discussion	Class Test	

1. Anita Jain
25/08/22
(Am, 7A Jsm)

2. Pooja Bhati
(POOJA BHATI)

WJC
Dr. MOHAN SINGH CHAUHAN
Principal
Shree Guru Gobind Singh Ji
Government College
Paonta Sahib
Dist. Simour (H.P.)-173025




3/13

DECEMBER: Preparation Of House Exam, Conduction Of House Exam, Revision Of Questions Of House Exam					
MONTH OF JANUARY - WINTER BREAK					
February	SECTION A	Solutions	Lecture and Notes	To solve previous year University questions	
	SECTION B	Conductance and Electrochemistry			
March	SECTION C	Functional group approach for the following reactions (preparations & reactions) to be studied in context to their structure.	Lecture and Notes	To solve previous year University questions	
	SECTION D	Carbohydrates			
APRIL: FINAL ANNUAL PRACTICAL FOLLOWED BY PREPARATORY FOR THEORY EXAMINATION.					

Amrita JN
05/08/22
(Amrita Jolani)

Pooja Bhati
(POOJA BHATI)


Dr. MOHAN SINGH CHAUHAN
Principal
Shree Guru Gobind Singh Ji
Government College
Paonta Sahib
Dist. Sirmour (H.P.)-173025



SHREE GURU GOBIND SINGH JI GOVERNMENT COLLEGE, PAONTA SAHIB
 DEPARTMENT OF CHEMISTRY
 TENTATIVE LESSON/ TEACHING PLAN

CLASS: BSc Second Year Course code: CHEM 201P CREDIT:2 Course Title: SOLUTIONS, PHASE EQUILIBRIUM, CONDUCTANCE, ELECTROCHEMISTRY & ORGANIC CHEMISTRY					
DATE	SECTION	TOPICS COVERED	METHOD OF TEACHING	ASSESSMENT	REMARKS
August	Departmental induction meeting (only for SEC students)	Syllabus, Details of CCA (Continuous Comprehensive Assessment), Distribution of Marks, House Exam, Attendance Rules, Practicals, Laboratory rules and format of Final Exam to be conducted by HP University, Pass percentage in each component (CCA, PRACTICAL, THEORY) and overall Pass percentage and importance of Skill Enhancement Courses to be chosen by the student. Assignment and Projects related to SEC, Laboratory CCA.	PPT's and Lecture method.		Queries from students are taken up during the induction session.
2 nd and 3 rd week of August	BASIC UNDERSTANDING OF SAFE CHEMISTRY LABORATORIES	1. LABORATORY ETIQUETTES 2. SAFETY RULES 3. MSDS SYMBOLS 4. HAZARDOUS CHEMICALS 5. DISPOSAL OF CHEMICAL WASTE 6. FIRE EXTINGUISHERS 7. BASIC UNDERSTANDING OF ORBITAL SHAKER AND CONDUCTIVITY METER	LECTURE AND PPT's By faculty members.		
4 th week of August	Distribution Law	Determination of distribution coefficient of i) iodine between CCl ₄ and Water ii) benzoic acid between benzene and water	LECTURE METHOD FOLLOWED BY PRACTICAL DEMONSTRATION	Performance by students and results of the experiment	Observations and calculations are checked on the spot.
1 st week of September	Conductance	1. Determination of cell constant 2. Determination of equivalent conductance, degree of dissociation and dissociation constant of a weak acid.	LECTURE METHOD FOLLOWED BY PRACTICAL DEMONSTRATION	Performance by students and results of the experiment	Observations and calculations are checked on the spot.
2 nd and 3 rd week of September	Conductance	Perform the following conductometric titrations: i) Strong acid vs. strong base ii) Weak acid vs. strong base	LECTURE METHOD FOLLOWED BY PRACTICAL DEMONSTRATION	Performance by students and results of the experiment	Observations and calculations are checked on the spot.
4 th week of September and 1 st week of October	Organic Chemistry	1. Preparations of organic compounds – Iodoform and Glucosazone	LECTURE METHOD FOLLOWED BY PRACTICAL DEMONSTRATION	Performance by students and results of the experiment	Observations and calculations are checked on the spot.
2 nd week of October	Organic Chemistry	Action of salivary amylase on starch Effect of temperature on the action of salivary amylase on starch. Differentiation between a reducing and a non-reducing sugar.	LECTURE METHOD FOLLOWED BY PRACTICAL DEMONSTRATION	Performance by students and results of the experiment	Observations and calculations are checked on the spot.

1. Anita Jash
05/10/22
(AMITA JASH)

2. Pooja Bhati
(POOJA BHATI)



Mohan Singh Chauhan
 Dr. MOHAN SINGH CHAUHAN
 Principal
 Shree Guru Gobind Singh Ji
 Government College
 Paonta Sahib
 Haryana - 151102

3 rd and 4 th week of October	REVISION OF PRACTICALS FOR THE STUDENTS WHOSE EXPERIMENTAL RESULTS ARE NOT UPTO THE MARK.
Month of November	VIVA AND FINAL CHECKING OF THE PRACTICAL NOTE BOOKS
DECEMBER: PREPARATION OF HOUSE EXAM, CONDUCTION OF HOUSE EXAM. REVISION OF QUESTIONS OF HOUSE EXAM	
MONTH OF JANUARY - WINTER BREAK	
REVISION OF PRACTICALS IN THE MONTH OF FEBRUARY	

5/13

Amite In (AmiTA Isru)
05/06/22

Pooja Bhati
(POOJA BHATI)

M.S.

Dr. MOHAN SINGH CHAUHAN
Principal
Shree Guru Gobind Singh Ji
Government College
Paonta Sahib
Dist. Simour (H.P.)-173025



SHREE GURU GOBIND SINGH JI GOVERNMENT COLLEGE, PAONTA SAHIB
DEPARTMENT OF CHEMISTRY
TENTATIVE LESSON/ TEACHING PLAN

CLASS: BSc Second Year Course code: CHEM 202 TH CREDIT:4					
Course Title: CHEMISTRY OF MAIN GROUP ELEMENTS , CHEMICAL ENERGETICS AND EQUILIBRIA					
DATE	SECTION	TOPICS COVERED	METHOD OF TEACHING	ASSESSMENT	REMARKS
August	Departmental induction meeting For students opting Chemistry as SEC in second Year	Syllabus, Details of CCA (Continuous Comprehensive Assesment), Distribution of Marks, House Exam, Attendance Rules, Practicals , Laboratory rules and format of Final Exam to be conducted by HP University, Pass percentage in each component(CCA,PRACTICAL,THEORY) and overall Pass percentage and importance of Skill Enhancement Courses to be chosen by the student. Lab CCA and Projects.	PPT's and Lecture method.		Queries from students are taken up during the induction session.
2 nd and 3 rd week of August	SECTION - A Hydrogen S-Block Elements	Unique position of Hydrogen in the periodic table, isotopes, ortho and para hydrogen, Industrial production, Hydrides and their chemistry, Heavy water, Hydrogen bonding, Hydrates. Periodicity of elements with respect to electronic configuration, atomic and ionic size, ionization enthalpy, electron gain enthalpy, electronegativity(Pauling Scale). General characteristics of s-block elements like density, melting points, flame colouration and reducing character, solvation and complexation tendencies and solutions of metals in liquid ammonia.	LECTURE AND PPT's By faculty members. Notes given through student wats app group.	Weekly online/Offline test	Questions for Practice through wats app group.
4 th week of August	Chemical Energetics SECTION C	Review of thermodynamics and the Laws of Thermodynamics. Important principles and definitions of thermochemistry. Concept of standard state and standard enthalpies of formations, integral and differential enthalpies of solution and dilution. Calculation of bond energy, bond dissociation energy and resonance energy from thermochemical data. Variation of enthalpy of a reaction with temperature – Kirchhoff's equation. Statement of Third Law of thermodynamics and calculation of absolute entropies of substances.	Lecture Method And demonstration through Experimental work in laboratory	Presentation by students	Assignments related to Name reactions for CCA to individual student through watsapp group.
1 st week of September	SECTION - D Chemical Equilibrium	Free energy change in a chemical reaction. Thermodynamic derivation of the law of chemical equilibrium. Distinction between ΔG and ΔG° , Le Chatelier's principle. Relationships between K_p , K_c and K_x for reactions involving ideal gases.	Basics of the topic through Lecture and PPT Method	Practice questions in class for revision and in depth understanding.	Assignments for CCA to individual student and compulsory library consultation on allotted week day.
3 rd week of September	Ionic Equilibria SECTION D	Strong, moderate and weak electrolytes, degree of ionization, factors affecting degree of ionization, ionization constant and ionic product of water. Ionization of weak acids and bases, pH scale,	Basics of the topic through Lecture and PPT Method.	Practice questions in class for revision and in	Assignments for CCA to individual student and compulsory

1. Anurag Jaha
05/08/22
(AM17A JCN)

2. Pooja Bhati
(POOJA BHATI)

482
Dr. MOHAN SINGH CHAUHAN
Principal
Shree Guru Gobind Singh Ji
Government College
Paonta Sahib
Dist. Simlaur (H.P.)-173025

		common ion effect. Salt hydrolysis-calculation of hydrolysis constant, degree of hydrolysis and pH for different salts. Buffer solutions. Solubility and solubility product of sparingly soluble salts – applications of solubility product principle.		depth understanding.	library consultation on allotted week day.
4 th week of September and 1 st week of October	SECTION – B P- Block Elements	Comparative studies including diagonal relationship of group 13 and 14 elements. Borohydrides, Hydrides, oxide and oxy-acids and halides of boron, borax, Borazine, allotropic forms of carbon, fullerenes, carbides of calcium and silicon. Hydrides, oxides, oxoacids and halides of nitrogen. Allotropic forms of phosphorous. Hydrides, halides, oxides and oxyacids of phosphorous. Basic properties of halogens and inter halogen compounds, pseudohalogens and poly halides.		Class Test in online and offline mode.	Class notes to be checked regularly.
2 nd and 3 rd week of October	SECTION – B Noble Gases	Occurrence of noble gases. History of discovery of noble gases and isolation of noble gases from air. Preparation properties and structure of important compounds of noble gases-fluorides, oxides, oxyfluorides of xenon (valence bond structure only). Krypton difluoride and clathrate compounds of noble gases. (Lecture and Demonstration method.	Class Test in online and offline mode.	Class notes to be checked regularly.
4 th week of October	SECTION C	Chemical Energetics	Discussion related to queries of assignments		
	SECTION D	Chemical and Ionic equilibria			
1 st week of November	SECTION C	Chemical Energetics			Collection and evaluation of Assignments of students given in the month of August.
	SECTION D	Chemical and Ionic equilibria			
2 nd and 3 rd week of November	SECTION A	Hydrogen S block elements	Lecture and Group Discussion	Class Test	
4 th week of November	SECTION B	P- Block Elements Noble gases	Lecture and Group Discussion	Class Test	
DECEMBER: PREPARATION OF HOUSE EXAM. CONDUCTION OF HOUSE EXAM. REVISION OF QUESTIONS OF HOUSE EXAM					
MONTH OF JANUARY - WINTER BREAK					
FEBRUARY	SECTION A	Hydrogen and s block elements	Lecture and Notes	To solve previous year University questions	
	SECTION B	P- Block Elements, Noble gases			
MARCH	SECTION C	Chemical Energetics	Lecture and Notes	To solve previous year University questions	
	SECTION D	Equilibria			
APRIL: FINAL ANNUAL PRACTICAL FOLLOWED BY PREPARATORY FOR THEORY EXAMINATION.					

Anu's Task
05/08/22
(Anu's Task)

Pooja Bhati
(POOJA BHATI)



Dr. MOHAN SINGH CHAUHAN
Principal
Shree Guru Gobind Singh Ji
Government College
Paonta Sahib
Dist. Simour (H.P.)-173025

9/13

and 1st week of October		solutions of soaps and shampoos to prevent damage to the glass electrode) using pH-meter.	PRACTICAL DEMONSTRATION	and results of the experiment	checked on the spot.
2 nd week of October	Buffer preparation	b) Preparation of buffer solutions: (i) Sodium acetate-acetic acid (ii) Ammonium chloride-ammonium hydroxide Measurement of the pH of buffer solutions and comparison of the values with theoretical values.	LECTURE METHOD FOLLOWED BY PRACTICAL DEMONSTRATION	Performance by students and results of the experiment	Observations and calculations are checked on the spot.
3 rd and 4 th week of October	REVISION OF PRACTICALS FOR THE STUDENTS WHOSE EXPERIMENTAL RESULTS ARE NOT UP TO THE MARK.				
November	VIVA AND FINAL CHECKING OF THE PRACTICAL NOTE BOOKS				
DECEMBER: PREPARATION OF HOUSE EXAM, CONDUCTION OF HOUSE EXAM, REVISION OF QUESTIONS OF HOUSE EXAM					
MONTH OF JANUARY - WINTER BREAK					
REVISION OF PRACTICALS IN THE MONTH OF FEBRUARY					

Amrita Jassi
05/08/20
(AMRITA JASSI)

Pooja Bhati
(POOJA BHATI)



M.S.C.
Dr. MOHAN SINGH CHAUHAN
Principal
Shree Guru Gobind Singh Ji
Government College
Paonta Sahib
Dist. Simour (H.P.)-173025

SHREE GURU GOBIND SINGH JI GOVERNMENT COLLEGE, PAONTA SAHIB
 DEPARTMENT OF CHEMISTRY
 TENTATIVE LESSON/ TEACHING PLAN

19/13

CLASS: BSc Second Year Course code: CHEM 203 TH SKILL ENHANCEMENT COURSE Course Title: BASIC ANALYTICAL CHEMISTRY CREDIT:4					
DATE	SECTION	TOPICS COVERED	METHOD OF TEACHING	ASSESSMENT	REMARKS
August	Departmental induction meeting For students opting Chemistry as SEC in second Year	Syllabus, Details of CCA (Continuous Comprehensive Assessment), Distribution of Marks, House Exam, Attendance Rules, Laboratory rules and format of Final Exam to be conducted by HP University, Pass percentage in each component (CCA, FINAL THEORY) and overall Pass percentage and importance of Skill Enhancement Courses to be chosen by the student, Projects/Assignments as part of CCA.	PPT's and Lecture method.		Queries from students are taken up during the induction session.
2 nd and 3 rd week of August	SECTION – C Chromatography	Definition, general introduction on principles of chromatography, paper chromatography, TLC etc. a. Paper chromatographic separation of mixture of metal ion (Fe ³⁺ and Al ³⁺), b. To compare paint samples by TLC method. Ion-exchange; Column, ion-exchange chromatography etc. Determination of ion exchange capacity of anion / cation exchange resin (using batch procedure if use of column is not feasible).	LECTURE AND PRACTICAL DEMONSTRATION By faculty members. Notes given through student wats app group.	Weekly online/Offline test	Questions for Practice through wats app group.
4 th week of August	SECTION – A Introduction to Analytical Chemistry and its interdisciplinary nature.	Concept of sampling, Importance of accuracy, precision and sources of error in analytical measurements. Presentation of experimental data and results, from the point of view of significant figures.	Lecture Method And demonstration through Experimental work in laboratory	Presentation by students	Assignments/Projects for CCA to individual student through whatsapp group.
1 st week of September	SECTION – A Analysis of soil	Analysis of soil: Composition of soil, Concept of pH and pH measurement, Complexometric titrations, Chelation, Chelating agents, use of indicators a. Determination of pH of soil samples. b. Estimation of Calcium and Magnesium ions as Calcium carbonate by complexometric titration.	Basics of the topic through Lecture and PPT Method	Practical knowledge through labwork for in depth understanding.	Assignments for CCA to individual student and compulsory library consultation on allotted week day.
3 rd week of September	SECTION – B Analysis of water Analysis of food products	Definition of pure water, sources responsible for contaminating water, water sampling methods, water purification methods. a. Determination of pH, acidity and alkalinity of a water sample. b. Determination of dissolved oxygen (DO) of a water sample. Nutritional value of foods, idea about food processing and food preservations and adulteration. a. Identification of adulterants in some common food items like coffee powder, asafoetida, chilli powder, turmeric powder, coriander powder and pulses, etc.	Basics of the topic through Lecture and PPT Method. Practical Use of pH meter.	Practice questions in class for revision and in depth understanding.	Assignments for CCA to individual student and compulsory library consultation on allotted week day.



Amrita
05/09/22
(AMITA ISHNI)

Pooja Bhati
(POOJA BHATI)

(Signature)
 Dr. MOHAN SINGH CHAUHAN
 Principal
 Shree Guru Gobind Singh Ji
 Government College
 Paonta Sahib
 Dist. Simour (H.P.)-173025

		b. Analysis of preservatives and colouring matter.			
4 th week of September and 1 st week of October	SECTION – D Analysis of cosmetics:	Major and minor constituents and their function a. Analysis of deodorants and antiperspirants, Al, Zn, boric acid, chloride, sulphate. b. Determination of constituents of talcum powder: Magnesium oxide, Calcium oxide, Zinc oxide and Calcium carbonate by complexometric titration.	Lecture and Demonstration	Class Test in online and offline mode.	Class notes to be checked regularly.
2 nd and 3 rd week of October	SECTION – D Analysis of cosmetics:	Suggested Applications (Any one): a. To study the use of phenolphthalein in trap cases. b. To analyze arson accelerants. c. To carry out analysis of gasoline.	Lecture and Demonstration method.	Class Test in online and offline mode.	Class notes to be checked regularly.
4 th week of October	SECTION A	Analysis of soil Introduction to Analytical Chemistry and its interdisciplinary nature.	Discussion related to queries of assignments		
	SECTION B	Analysis of water Analysis of food products			
1 st week of November	SECTION A	Analysis of soil Introduction to Analytical Chemistry and its interdisciplinary nature.			Collection and evaluation of Assignments of students given in the month of August.
	SECTION B	Analysis of water Analysis of food products			
2 nd and 3 rd week of November	SECTION C	Chromatography	Lecture and Group Discussion	Class Test	
4 th week of November	SECTION D	Analysis of cosmetics	Lecture and Group Discussion	Class Test	
DECEMBER: PREPARATION OF HOUSE EXAM, CONDUCTION OF HOUSE EXAM, REVISION OF QUESTIONS OF HOUSE EXAM					
MONTH OF JANUARY - WINTER BREAK					
FEBRUARY	SECTION A	Analysis of soil Introduction to Analytical Chemistry and its interdisciplinary nature.	Lecture and Notes	To solve previous year University questions	
	SECTION B	Analysis of water Analysis of food products			
MARCH	SECTION C	Chromatography	Lecture and Notes	To solve previous year University questions	
	SECTION D	Analysis of cosmetics			
APRIL: FINAL ANNUAL PRACTICAL FOLLOWED BY PREPARATORY FOR THEORY EXAMINATION.					

Amrita I
25/12/20
(AMITA CHAUHAN)

Pooja Bhati
(POOJA BHATI)



Dr. MOHAN SINGH CHAUHAN
Principal
Shree Guru Gobind Singh Ji
Government College
Paonta Sahib
Dist. Simour (H.P.)-173025

SHREE GURU GOBIND SINGH JI GOVERNMENT COLLEGE, PAONTA SAHIB

**DEPARTMENT OF CHEMISTRY
TENTATIVE LESSON/ TEACHING PLAN**

CLASS: BSc Second Year
Course code: CHEM 204 TH
SKILL ENHANCEMENT COURSE
Course Title: FUEL CHEMISTRY & CHEMISTRY OF COSMETICS & PERFUME
CREDIT:4

DATE	SECTION	TOPICS COVERED	METHOD OF TEACHING	ASSESSMENT	REMARKS
August	Departmental induction meeting For students opting Chemistry as SEC in second Year	Syllabus, Details of CCA (Continuous Comprehensive Assessment), Distribution of Marks, House Exam, Attendance Rules, Laboratory rules and format of Final Exam to be conducted by HP University, Pass percentage in each component(CCA,FINAL THEORY) and overall Pass percentage and importance of Skill Enhancement Courses to be chosen by the student. Projects/Assignments as part of CCA.	PPT's and Lecture method.		Queries from students are taken up during the induction session.
2 nd and 3 rd week of August	SECTION-A Review of energy sources (renewable and non-renewable).	Classification of fuels and their calorific value. Coal: Uses of coal (fuel and nonfuel) in various industries, its composition, carbonization of coal. Coal gas, producer gas and water gas— composition and uses. Fractionation of coal tar, uses of coal tar bases chemicals, requisites of a good metallurgical coke. Coal gasification (Hydro gasification and Catalytic gasification), Coal liquefaction and Solvent Refining. Petroleum and Petrochemical Industry: Composition of crude petroleum, Refining and different types of petroleum products and their applications.	LECTURE AND PPT By faculty members. Notes given through student wats app group.	Weekly online/Offline test	Questions for Practice through wats app group.
4 th week of August	SECTION-C A general study including preparation and uses of the following	Hair dye, hair spray, shampoo, suntan lotions, face powder, lipsticks, talcum powder, nail enamel, creams (cold, vanishing and shaving creams),	Lecture Method And PPT'S	Class test	Assignments/Projects/Survey for CCA to individual student through watsapp group.
1 st week of September	SECTION-D Essential oils	Essential oils and their importance in cosmetic industries with reference to Eugenol, Geraniol, sandalwood oil, eucalyptus, rose oil, 2-phenyl ethyl alcohol, Jasmone, Civetone, Muscone.	Basics of the topic through Lecture and PPT Method	Compulsory Library consultation for in depth understanding.	Assignments for CCA to individual student.
3 rd week of September	SECTION-C	Antiperspirants and artificial flavours.	Basics of the topic through Lecture and PPT Method. Practical Use of pH meter.	Practice questions in class for revision and in depth understanding.	Assignments for CCA to individual student and compulsory library consultation on allotted week day.
4 th week of September and 1 st week of October	SECTION-B Fractional Distillation((Principle and process)	Cracking (Thermal and catalytic cracking), Reforming Petroleum and non-petroleum fuels (LPG, CNG, LNG, bio-gas, fuels derived from biomass), fuel from waste, synthetic fuels (gaseous and liquids), clean fuels. Petrochemicals: Vinyl acetate, Propylene oxide.	Lecture and PPT	Class Test in online and offline mode.	Class notes to be checked regularly.



Anita
05/08/22
(AM/TA/Sec)

Booj Bhati
(BOOJA BHATI)

Dr. MOHAN SINGH CHAUHAN
Principal
Shree Guru Gobind Singh Ji
Government College
Paonta Sahib
Dist. Simour (H.P.)-173025

12/13

		Isoprene, Butadiene, Toluene and its derivatives Xylene.			
2 nd and 3 rd week of October	SECTION-B Lubricants	Classification of lubricants, lubricating oils (conducting and non-conducting) Solid and semisolid lubricants, Synthetic lubricants. Properties of lubricants (viscosity index, cloud point, pour point) and their determination.	Lecture and Demonstration method.	Class Test in online and offline mode.	Class notes to be checked regularly.
4 th week of October	SECTION C SECTION D	Hair dye, hair spray, shampoo, suntan lotions, face powder, lipsticks, talcum powder, nail enamel, creams (cold, vanishing and shaving creams), Antiperspirants and artificial flavours. Essential oils	Discussion related to queries of assignments		
1 st week of November	SECTION C SECTION D	Hair dye, hair spray, shampoo, suntan lotions, face powder, lipsticks, talcum powder, nail enamel, creams (cold, vanishing and shaving creams), Antiperspirants and artificial flavours. Essential oils			Collection and evaluation of Assignments of students given in the month of August.
2 nd and 3 rd week of November	SECTION A	Review of energy sources (renewable and non-renewable)	Lecture and Group Discussion	Class Test	
4 th week of November	SECTION B	Lubricants, Fractional Distillation(Principle and process)	Lecture and Group Discussion	Class Test	
DECEMBER: PREPARATION OF HOUSE EXAM. CONDUCTION OF HOUSE EXAM, REVISION OF QUESTIONS OF HOUSE EXAM					
MONTH OF JANUARY - WINTER BREAK					
FEBRUARY	SECTION C SECTION D	Hair dye, hair spray, shampoo, suntan lotions, face powder, lipsticks, talcum powder, nail enamel, creams (cold, vanishing and shaving creams), Antiperspirants and artificial flavours. Essential oils	Lecture and Notes	To solve previous year University questions	
MARCH	SECTION A SECTION B	Review of energy sources (renewable and non-renewable) Lubricants, Fractional Distillation(Principle and process)	Lecture and Notes	To solve previous year University questions	
APRIL: FINAL ANNUAL PRACTICAL FOLLOWED BY PREPARATORY FOR THEORY EXAMINATION.					

Anita Jind
02/08/22
(Am TA Jind)

Rooja Bhati
(ROOJA BHATI)



Dr. MOHAN SINGH CHAUHAN
Principal
Shree Guru Gobind Singh Ji
Government College
Paonta Sahib
Dist. Sirmour (H.P.)-173025

SHREE GURU GOBIND SINGH JI GOVERNMENT COLLEGE, PAONTA SAHIB
DEPARTMENT OF CHEMISTRY
TENTATIVE LESSON/ TEACHING PLAN

CLASS: B.Sc. Third Year Course code: CHEM 301TH Course Title: POLYNUCLEAR HYDROCARBONS, DYES, HETEROCYCLIC COMPOUNDS AND SPECTROSCOPY (UV, IR, NMR) CREDIT :4					
DATE/ MONTH	SECTION	TOPICS COVERED	METHOD OF TEACHING	ASSESSMENT	REMARKS
August	Departmental induction meeting For students opting Chemistry as SEC in second Year	Syllabus, Details of CCA (Continuous Comprehensive Assessment), Distribution of Marks, House Exam, Attendance Rules, Practicals, Laboratory rules and format of Final Exam to be conducted by HP University, Pass percentage in each component(CCA,PRACTICAL,THEORY) and overall Pass percentage and importance of Skill Enhancement Courses to be chosen by the student.	PPT's and Lecture method.		Queries from students are taken up during the induction session.
1 st and 2 nd week of August	SECTION – A Polynuclear Hydrocarbons;	Synthesis & reactions of Naphthalene, Anthracene & Phenanthrene. Relative reactivity of these compounds at various positions.	PPT's and Lecture method.	Weekly online/Offline test	Notes and study material through whatsapp group.
3 rd week of August	SECTION – A Synthetic dyes	Colour and constitution [electronic concept], classification of dyes. Chemistry and synthesis of methyl orange, congo red, malachite green, crystal violet, phenolphthalein, fluorescein, alizarin and indigo.	Lecture And PPT's by faculty members.	Weekly online/Offline test	Questions for Practice through whatsapp group.
4 th week of August	SECTION - C Application of UV and IR Spectroscopy to Simple Organic Molecules	Application of visible, ultraviolet and Infrared spectroscopy in organic molecules. Electromagnetic radiations, electronic transitions, λ_{max} . & ϵ_{max} . chromophore, auxochrome, bathochromic and hypsochromic shifts. Application of electronic spectroscopy and Woodward rules for calculating λ_{max} . of conjugated dienes and α , β – unsaturated compounds. Infrared radiation and types of molecular vibrations, functional group and fingerprint region. IR spectra of alkanes, alkenes and simple alcohols (inter and intramolecular hydrogen bonding), aldehydes, ketones, carboxylic acids and their derivatives (effect of substitution on $>C=O$ stretching absorptions).	Basics of UV and IR to be given by group discussions.	Presentation by students	Assignments for CCA on the topics to individual student through whatsapp group.
1 st week of September	Section D Nuclear Magnetic Resonance Spectroscopy;	Principle of nuclear magnetic resonance, number of signals, peak areas equivalent & non-equivalent protons. positions of signals, chemical shift. Shielding & deshielding of protons, proton counting, splitting of signals & coupling constants, magnetic equivalence of protons. Discussion of PMR spectra of molecules : ethyl bromide, n –propyl bromide, isopropyl bromide 1,1-dibromoethane 1,1,2- tribromo ethane, ethanol, toluene, acetaldehyde, acetophenone. Simple problems on PMR spectroscopy for structure determination of organic compounds.	Basics of the topic through Lecture and PPT Method.	Practice questions in class for revision and in depth understanding.	Assignments for CCA to individual student and compulsory library consultation on allotted week day.



1. Ananta Joshi 05/09/2022
(ANANTA JOSHI)

2. Pooja Bhati
(POOJA BHATI)

MS
 Dr. MOHAN SINGH CHAUHAN
 Principal
 Shree Guru Gobind Singh Ji
 Government College
 Paonta Sahib
 Dist. Simmour (H.P.)-173025

2 nd and 3 rd week of September	SECTION B Heterocyclic compounds	Introduction: Classification and nomenclature, Molecular orbital picture & aromatic characteristics of pyrrole, furan, thiophene & pyridine. Methods of synthesis, chemical reactions with emphasis on mechanism of electrophilic substitution. Mechanism of nucleophilic substitution reactions in pyridine, comparison of basicity of pyridine, piperidine and pyrrole.	Teaching through Lecture and PPT's With the aid of models and videos respectively	Question Answer session in the class/ online mode	Practice questions from previous year question papers for homework
4 th week of September	SECTION B Heterocyclic compounds	Introduction to condensed five & six-membered heterocyclic compounds, preparation & reactions of indole quinoline & isoquinoline with special reference to Fisher indole synthesis Skraup synthesis & Bischler – Napieralski synthesis. Mechanism of electrophilic substitution reactions of indole, quinoline, & isoquinoline.	Lecture and Demonstration method.	Class Test in online and offline mode.	Class notes to be checked regularly.
1 st and 2 nd week of October	SECTION C	Application of UV and IR Spectroscopy to Simple Organic Molecules	Discussion of queries related to assignments	Class Test in online and offline mode.	
3 rd and 4 th week of October	SECTION D	Nuclear Magnetic Resonance Spectroscopy	Discussion of queries related to assignments	Class Test in online and offline mode.	
1 st week of November	SECTION C SECTION D	Application of UV and IR Spectroscopy to Simple Organic Molecules Nuclear Magnetic Resonance Spectroscopy			Collection and evaluation of Assignments of students given in the month of August.
2 nd & 3 rd week of November	SECTION A	Heterocyclic compounds	Lecture & Group Discussion	Class Test	
4 th week of November	SECTION B	Application of UV and IR Spectroscopy to Simple Organic Molecules	Lecture and Group Discussion	Class Test	
December	PREPARATION, CONDUCTION AND REVIEW OF HOUSE EXAM				
January	WINTER BREAK				
February	SECTION A	Polynuclear Hydrocarbons	Lecture and Notes	To solve previous year University questions	
	SECTION B	Synthetic dyes Heterocyclic compounds			
March	SECTION C	Application of UV and IR Spectroscopy to Simple Organic Molecules	Lecture and Notes	To solve previous year University questions	
	SECTION D	Nuclear Magnetic Resonance Spectroscopy			
April	FINAL ANNUAL PRACTICAL FOLLOWED BY PREPARATORY FOR THEORY EXAMINATION				

1. Anita Joshi 5/8/22
(Anita Joshi)

2. Pooja Bhati
(POOJA BHATI)

Dr. MOHAN SINGH CHAUHAN
Principal
Shree Guru Gobind Singh Ji
Government College
Paonta Sahib
Dist. Simour (H.P.)-173025



3/11

SHREE GURU GOBIND SINGH JI GOVERNMENT COLLEGE, PAONTA SAHIB
DEPARTMENT OF CHEMISTRY
TENTATIVE LESSON/ TEACHING PLAN

CLASS: B.Sc. Third Year Course code: CHEM 301 PR Course Title: POLYNUCLEAR HYDROCARBONS, DYES, HETEROCYCLIC COMPOUNDS AND SPECTROSCOPY (UV, IR, NMR) Credit: 2					
DATE	SECTION	TOPICS COVERED	METHOD OF TEACHING	ASSESSMENT	REMARKS
1 st and 2 nd week of August	BASIC UNDERSTANDING OF ALL THE LAB RULES, INSTRUMENTS AND APPARATUS TO BE USED DURING PRACTICALS IN COMPLETE SESSION	1. LABORATORY ETIQUETTES 2. SAFETY RULES 3. MSDS SYMBOLS 4. HAZARDOUS CHEMICALS 5. DISPOSAL OF CHEMICAL WASTE 6. ERRORS IN HANDLING OF APPARATUS. 7. FIRE EXTINGUISHERS 8. UV Visible Spectrophotometer, Conductivity meter.	PPT's and Lecture method by faculty members.		Students shall be encouraged to prepare Lab manuals for better understanding of instruments.
3 rd & 4 th week of August	1. Chromatography	Separation of mixtures by chromatography: Measure the R _f value in each case. (Combination of two ions to be given) Paper chromatographic separation of Fe ³⁺ , Al ³⁺ and Cr ³⁺ or Paper chromatographic separation of Ni ²⁺ , Co ²⁺ , Mn ²⁺ and Zn ²⁺	LECTURE METHOD FOLLOWED BY PRACTICAL DEMONSTRATION	Performance by students and results of the experiment	Observations and calculations are checked on the spot.
1 st & 2 nd week of September	2. Preparation of complex and measurement of conductivity	2. Preparation of any two of the following complexes and measurement of their conductivity: (i) tetraamminecarbonatocobalt (III) nitrate (ii) tetraamminecopper (II) sulphate (iii) potassium trioxalatoferrate (III) trihydrate	LECTURE METHOD FOLLOWED BY PRACTICAL DEMONSTRATION	Performance by students and results of the experiment	Observations and calculations are checked on the spot.
3 rd & 4 th week of September	3. Colorimetry	Draw calibration curve (absorbance at λ _{max} vs. concentration) for various concentrations of a given coloured compound (KMnO ₄ / CuSO ₄) and estimate the concentration of the same in a given solution.	LECTURE METHOD FOLLOWED BY PRACTICAL DEMONSTRATION	Performance by students and results of the experiment	Observations and calculations are checked on the spot.
1 st & 2 nd week of October	REVISION OF PRACTICALS FOR THE STUDENTS WHOSE EXPERIMENTAL RESULTS ARE NOT UPTO THE MARK.				
3 rd & 4 th week of October	VIVA AND FINAL CHECKING OF THE PRACTICAL NOTE BOOKS				
DECEMBER	PREPARATION OF HOUSE EXAM, CONDUCTION OF HOUSE EXAM, REVISION OF QUESTIONS OF HOUSE EXAM				
JANUARY	WINTER BREAK				
REVISION OF PRACTICALS IN THE MONTH OF FEBRUARY					

1. Amrita Bhatia 05/08/22
(AMRITA BHATI)

2. Pooja Bhati
(POOJA BHATI)



M.S.C.

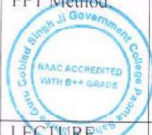
Dr. MOHAN SINGH CHAUHAN
Principal
Shree Guru Gobind Singh Ji
Government College
Paonta Sahib
Dist. Sirmour (H.P.)-173025

SHREE GURU GOBIND SINGH JI GOVERNMENT COLLEGE, PAONTA SAHIB
DEPARTMENT OF CHEMISTRY
TENTATIVE LESSON/ TEACHING PLAN

CLASS: B.Sc. Third Year Course code: CHEM 304TH Course Title: CHEMISTRY OF TRANSITION AND INNER TRANSITION ELEMENTS , COORDINATION CHEMISTRY, ORGANOMETALLICS, ACIDS and BASES Credits: 4					
DATE	SECTION	TOPICS COVERED	METHOD OF TEACHING	ASSESSMENT	REMARKS
August	Departmental induction meeting For students opting Chemistry as SEC in second Year	Syllabus, Details of CCA (Continuous Comprehensive Assessment), Distribution of Marks, House Exam, Attendance Rules, Practicals, Laboratory rules and format of Final Exam to be conducted by HP University, Pass percentage in each component(CCA,PRACTICAL,THEORY) and overall Pass percentage and importance of Skill Enhancement Courses to be chosen by the student.	PPT's and Lecture method.		Queries from students are taken up during the induction session.
1 st week of August	SECTION - A Transition Elements (3d series) - Chemistry of elements of 3d metals	Oxidation states displayed by Cr, Fe, Co, Ni and Cu. A study of the following compounds (including preparation and important properties); Peroxo compounds of Cr, K ₂ Cr ₂ O ₇ , KMnO ₄ , K ₄ [Fe(CN) ₆], sodium nitroprusside, [Co(NH ₃) ₆]Cl ₃ , Na ₃ [Co(NO ₂) ₆].	PPT's and Lecture method.	Weekly online/ Offline test	Notes given through student wats app group.
2 nd week of August	SECTION - A Transition Elements (3d series) - Chemistry of elements of 3d metals	General group trends with special reference to electronic configuration, variable valency, colour, magnetic and catalytic properties, ability to form complexes and stability of various oxidation states (Latimer diagrams) for Mn, Fe and Cu.	LECTURE AND PPT's By faculty members.	Weekly online/ Offline test	Questions for Practice through wats app group.
3 rd week of August	SECTION - A Lanthanides and actinides	Electronic configurations, oxidation states, colour, magnetic properties, lanthanide contraction, separation of lanthanides and actinides (ion exchange method only).	PPT's and Lecture method.	Weekly online/ Offline test	Notes given through student wats app group.
4 th week of August & 1 st week of September	SECTION - C Crystal Field Theory	Crystal field effect, octahedral symmetry, Crystal field stabilization energy (CFSE), Crystal field effects for weak and strong fields. Tetrahedral symmetry, Factors affecting the magnitude of CF splitting, Spectrochemical series. Comparison of CF Splitting for Octahedral and tetrahedral complexes, Tetragonal distortion of octahedral geometry, Jahn-Teller distortion, Square planar coordination.	Group discussions	Presentation by students	Assignments for CCA on the topics to individual student through watsapp group.
2 nd week of September	SECTION - D Acids and Bases	Arrhenius, Bronsted and Lowry, Lewis, Lux flood and solvent system concepts of acids and bases. Classification of acids and bases as hard and soft. Pearson's HSAB concept, application of HSAB principle. Relative strength of acids and bases and effect of substituents and solvent on their strength.	Basics of the topic through Lecture and PPT Method.	Practice questions in class for revision and in depth understanding.	Assignments for CCA to individual student and compulsory library consultation on allotted week day.
3 rd & 4 th week of	SECTION - B Coordination	Valence Bond Theory (VBT): Inner and outer orbital complexes of Cr, Fe,	LECTURE AND PPT's	Weekly online/ Offline	Questions for Practice through

1. Anurita Jaiswal (Am) TA Jaiswal

2. Pooja Bhati (POOJA BHATI)


 Dr. MOHAN SINGH CHAUHAN
 Principal
 Shree Guru Gobind Singh Ji
 Government College
 Paonta Sahib
 Dist. Sirmour (H.P.)-173025

September	Chemistry	Co, Ni and Cu (coordination numbers 4 and 6). Structural and stereoisomerism in complexes with coordination numbers 4 and 6. Drawbacks of VBT. IUPAC nomenclature of coordination compounds.	By faculty members.	test	wats app group.
1 st & 2 nd week of October	SECTION - B Organometallic Compounds	Definition and Classification with appropriate examples based on nature of metal-carbon bond (ionic, s, p and multicentre bonds). Structures of methyl lithium, Zeiss salt and ferrocene. EAN rule as applied to carbonyls. Preparation, structure, bonding and properties of mononuclear and polynuclear carbonyls of 3d metals. π -acceptor behaviour of carbon monoxide. Synergic effects (VB approach)- (MO diagram of CO can be referred to for synergic effect to IR frequencies).	LECTURE AND PPT's By faculty members.	Weekly online/ Offline test	Questions for Practice through wats app group.
3 rd & 4 th week of October	Section C Section D	Crystal Field Theory Acids and Bases	Lecture and Demonstration method.	Class Test in online and offline mode.	
1 st & 2 nd week of November	Section C Section D	Crystal Field Theory Acids and Bases	Discussion related to queries of assignments		
3 rd and 4 th week of November	Section C Section D	Crystal Field Theory Acids and Bases			Collection and evaluation of Assignments of students given in the month of August.
December	PREPARATION OF HOUSE EXAM AND CONDUCTION OF HOUSE EXAM				
January	WINTER BREAK				
February	SECTION - A SECTION B	Transition Elements (3d series) - Chemistry of elements of 3d metals. Lanthanides and Actinides Coordination Chemistry. Organometallic Compounds	Lecture and Notes	To solve previous year University questions	
March	SECTION C SECTION D	Crystal Field Theory Acids and Bases	Lecture and Notes	To solve previous year University questions	
April	Final Annual Practical Followed By Preparatory For Theory Examination				

1. Anita Isahy (A.M. TA Bhat)

2. Pooja Bhati (POOJA BHATI)

Dr. MOHAN SINGH CHAUHAN
Principal
Shree Guru Gobind Singh Ji
Government College
Paonta Sahib
Dist. Sirmour (H.P.)-173025



SHREE GURU GOBIND SINGH JI GOVERNMENT COLLEGE, PAONTA SAHIB
 DEPARTMENT OF CHEMISTRY
 TENTATIVE LESSON/TEACHING PLAN

CLASS: B.Sc. Third Year
Course code: CHEM 304 PR
Course Title: CHEMISTRY OF TRANSITION AND INNER TRANSITION ELEMENTS , COORDINATION CHEMISTRY, ORGANOMETALLICS, ACIDS and BASES LAB
Credits: 2

DATE	SECTION	TOPICS COVERED	METHOD OF TEACHING	ASSESSMENT	REMARKS
1 st week of August	BASIC UNDERSTANDING OF ALL THE LAB RULES, INSTRUMENTS AND APPARATUS TO BE USED DURING PRACTICALS IN COMPLETE SESSION	1. LABORATORY ETIQUETTES 2. SAFETY RULES 3. MSDS SYMBOLS 4. HAZARDOUS CHEMICALS 5. DISPOSAL OF CHEMICAL WASTE 6. ERRORS IN HANDLING OF APPARATUS. 7. FIRE EXTINGUISHERS 8. METHODS OF GREEN QUALITATIVE AND QUANTITATIVE ANALYSIS	PPT's and Lecture method by faculty members.		Students shall be encouraged to prepare Lab manuals for better understanding of instruments.
2 nd week of August	1. Iodometry	1. Iodometric estimation of potassium dichromate and copper estimate.	LECTURE METHOD FOLLOWED BY PRACTICAL DEMONSTRATION	Performance by students and results of the experiment.	Observations and calculations are checked on the spot.
3 rd & 4 th week of August	2. Iodimetry	1. Iodimetric estimation of antimony in tartaremetic. 2. Iodimetric estimation of ascorbic acid in fruit juices .	LECTURE METHOD FOLLOWED BY PRACTICAL DEMONSTRATION	Performance by students and results of the experiment	Observations and calculations are checked on the spot.
1 st week of September	3. Gravimetry	1. Gravimetric estimation of sulphate in barium sulphate. 2. Gravimetric estimation of aluminum in oximate complex.	LECTURE METHOD FOLLOWED BY PRACTICAL DEMONSTRATION	Performance by students and results of the experiment	Observations and calculations are checked on the spot.
2 nd week of September	4. Estimation of chlorine and iodine.	1. Estimation of amount of available chlorine in bleaching powder and household bleachers. 2. Estimation of iodine in iodized salts	LECTURE METHOD FOLLOWED BY PRACTICAL DEMONSTRATION	Performance by students and results of the experiment	Observations and calculations are checked on the spot.
3 rd week of September	5. Inorganic Preparations	Inorganic preparation of i) Potash alum ii) Chrome alum iii) tetraamminecopper(II) sulphate iv) potassium trioxalatoferate(III) v) hexaammine nickel(II) chloride	LECTURE METHOD FOLLOWED BY PRACTICAL DEMONSTRATION	Performance by students and results of the experiment	Observations and calculations are checked on the spot.
4 th week of September	6. Complexometric titrations	1. Estimation of (i) Mg^{2+} or (ii) Zn^{2+} by complexometric titrations using EDTA. 2. Estimation of total hardness of a given sample of water by	LECTURE METHOD FOLLOWED BY PRACTICAL	Performance by students and results of the experiment	Observations and calculations are checked on the spot.

1. Anita Joshi (Amrita Joshi)

2. Pooja Bhati (POOJA BHATI)


Dr. MOHAN SINGH CHAUHAN
 Principal
 Shree Guru Gobind Singh Ji
 Government College
 Paonta Sahib
 Dist. Sirmour (H.P.)-173025

1/11

	complexometric titration	DEMONSTRATION		
1 st and 2 nd week of October	REVISION OF PRACTICALS FOR THE STUDENTS WHOSE EXPERIMENTAL RESULTS ARE NOT UPTO THE MARK.			
3 rd week of October	VIVA AND FINAL CHECKING OF THE PRACTICAL NOTE BOOKS			

1. Amrita Toshani
(Amrita Toshani)

2. Pooja Bhati
(POOJA BHATI)


Dr. MOHAN SINGH CHAUHAN
Principal
Shree Guru Gobind Singh Ji
Government College
Paonta Sahib
Dist. Sirmour (H.P.)-173025



SHREE GURU GOBIND SINGH JI GOVERNMENT COLLEGE, PAONTA SAHIB


**DEPARTMENT OF CHEMISTRY
TENTATIVE LESSON/ TEACHING PLAN**

CLASS: BSc Third Year Course code: CHEM 307 TH SKILL ENHANCEMENT COURSE Course Title: CHEMICAL TECHNOLOGY & SOCIETY and BUSINESS SKILLS FOR CHEMISTRY CREDIT:4					
DATE	SECTION	TOPICS COVERED	METHOD OF TEACHING	ASSESSMENT	REMARKS
August	Departmental induction meeting For students opting Chemistry as SEC in second Year	Syllabus, Details of CCA (Continuous Comprehensive Assessment), Distribution of Marks, House Exam, Attendance Rules, Laboratory rules and format of Final Exam to be conducted by HP University, Pass percentage in each component (CCA, FINAL THEORY) and overall Pass percentage and importance of Skill Enhancement Courses to be chosen by the student. Projects/Assignments as part of CCA.	PPT's and Lecture method.		Queries from students are taken up during the induction session.
2 nd and 3 rd week of August	SECTION-A Chemical Technology	Basic principles of distillation, solvent extraction, solid-liquid leaching and liquid-liquid extraction, separation by absorption and adsorption.	LECTURE AND PRACTICAL DEMONSTRATION By faculty members.	Weekly online/Offline test.	Notes given through student wats app group.
4 th week of August	SECTION-A Chemical Technology	An introduction into the scope of different types of equipment needed in chemical technology, including reactors, distillation columns, extruders, pumps, mills, emulgators. Scaling up operations in chemical industry. Introduction to clean technology.	Lecture Method. Aid through videos.	Presentation by students on clean technology.	Assignments/Projects for CCA to individual student through watsapp group.
1 st week of September	Section - C Business Basics	Key business concepts: Business plans, market need, project management and routes to market.	Basics of the topic through Lecture and PPT Method	Survey report of any firm.	Assignments for CCA to individual student.
3 rd week of September	SECTION - C Chemistry in Industry	Current challenges and opportunities for the chemistry-using industries, role of chemistry in India and global economies.	Basics of the topic through Lecture and PPT Method.		Assignments for CCA to individual student.
4 th week of September	Section - D Making money, Intellectual property	Financial aspects of business with case studies, Concept of intellectual property, patents.	Basics of the topic through Lecture and PPT Method.	Presentation by students.	Assignments for CCA to individual student and compulsory library consultation on allotted week day.



1. Amrita Israni
(AMRITA ISRANI)

2. Pooja Bhati
(POOJA BHATI)


 Dr. MOHAN SINGH CHAUHAN
 Principal
 Shree Guru Gobind Singh Ji
 Government College
 Paonta Sahib
 Dist. Sirmour (H.P.)-173025

1st and 2 nd week of October	SECTION-B Society	Exploration of societal and technological issues from a chemical perspective. Chemical and scientific literacy as a means to better understand topics like air and water (and the trace materials found in them that are referred to as pollutants); energy from natural sources (i.e. solar and renewable forms), from fossil fuels and from nuclear fission; materials like plastics and polymers and their natural analogues, proteins and nucleic acids, and molecular reactivity and interconversions from simple examples like combustion to complex instances like genetic engineering and the manufacture of drugs.	Lecture and Demonstration method.	Class Test in online and offline mode.	Class notes to be checked regularly.
3 rd & 4 th week of October	Section - C Section - D	Business Basics, Chemistry in Industry Making money, Intellectual property	Discussion related to queries of assignments		
1 st week of November	Section - C Section - D	Business Basics, Chemistry in Industry Making money, Intellectual property			Collection and evaluation of Assignments of students given in the month of August.
2 nd and 3 rd week of November	SECTION A	Chemical Technology	Lecture and Group Discussion	Class Test	
4 th week of November	SECTION B	Society	Lecture and Group Discussion	Class Test	
DECEMBER: Preparation Of House Exam, Conduction of House Exam, Revision of Questions of House Exam					
MONTH OF JANUARY - WINTER BREAK					
February	Section - C Section - D	Business Basics, Chemistry in Industry Making money, Intellectual property	Lecture and Notes	To solve previous year University questions	
March	SECTION A SECTION B	Chemical Technology Society	Lecture and Notes	To solve previous year University questions	
APRIL: FINAL ANNUAL PRACTICAL FOLLOWED BY PREPARATORY FOR THEORY EXAMINATION.					

1. Anita Tosh (AMITA TOSHI)

2. Pooja Bhati (POOJA BHATI)



Dr. MOHAN SINGH CHAUHAN
Principal
Shree Guru Gobind Singh Ji
Government College
Paonta Sahib
Dist. Sirmour (H.P.)-173025

SHREE GURU GOBIND SINGH JI GOVERNMENT COLLEGE, PAONTA SAHIB
 DEPARTMENT OF CHEMISTRY
 TENTATIVE LESSON/ TEACHING PLAN

CLASS: BSc Third Year Course code: CHEM 308 TH SKILL ENHANCEMENT COURSE Course Title: PESTICIDE CHEMISTRY & PHARMACEUTICAL CHEMISTRY CREDIT:4					
DATE	SECTION	TOPICS COVERED	METHOD OF TEACHING	ASSESSMENT	REMARKS
August	Departmental induction meeting For students opting Chemistry as SEC in second Year	Syllabus. Details of CCA (Continuous Comprehensive Assessment). Distribution of Marks. House Exam. Attendance Rules . Laboratory rules and format of Final Exam to be conducted by HP University. Pass percentage in each component (CCA,FINAL. THEORY) and overall Pass percentage and importance of Skill Enhancement Courses to be chosen by the student. Projects/Assignments as part of CCA.	PPT's and Lecture method.		Queries from students are taken up during the induction session.
2 nd and 3 rd week of August	SECTION-A	General introduction to pesticides (natural and synthetic), benefits and adverse effects, changing concepts of pesticides, structure activity relationship.	LECTURE AND PRACTICAL DEMONSTRATION By faculty members. Notes given through student wats app group.	Survey report by students from the nearby villages.	Questions for Practice through wats app group.
4 th week of August & 1 st week of September	SECTION - C	Drugs & Pharmaceuticals Drug discovery, design and development; Basic Retrosynthetic approach. Synthesis of the representative drugs of the following classes: analgesics agents, antipyretic agents, antiinflammatory agents (Aspirin, paracetamol, Ibuprofen); antibiotics (Chloramphenicol); antibacterial and antifungal agents (Sulphonamides; Sulphanethoxazol. Sulphacetamide. Trimethoprim); antiviral agents (Acyclovir). Central Nervous System agents (Phenobarbital. Diazepam).Cardiovascular (Glyceryl trinitrate). antilaprosy (Dapsone). HIV-AIDS related drugs (AZT-Zidovudine).	Lecture Method	Presentat ion by students	Assignmen ts/Projects for CCA to individual student through watsapp group.
2 nd & 3 rd week of September	Section - D	Fermentation Aerobic and anaerobic fermentation. Production of (i) Ethyl alcohol and citric acid, (ii) Antibiotics; Penicillin, Cephalosporin, Chloromycetin and Streptomycin, (iii) Lysine, Glutamic acid, Vitamin B2, Vitamin B12 and Vitamin C.	Basics of the topic through Lecture and PPT Method		Industrial visit to any pharma company and presentation of report.

1. Anita Isab (AMITA ISHANI)

2. Pooja (Rati) (POOJA BHATI)

Dr. MOHAN SINGH CHAUHAN
 Principal
 Shree Guru Gobind Singh Ji
 Government College
 Paonta Sahib
 Dist. Sirmour (H.P.)-173025

4 th week of September & 1 st week of October	SECTION-B	Synthesis and technical manufacture and uses of representative pesticides in the following classes: Organochlorines (DDT, Gammexene.); Organophosphates (Malathion, Parathion); Carbamates (Carbofuran and carbaryl); Quinones (Chloranil), Anilides (Alachlor and Butachlor).	Lecture and Demonstration method.	Class Test in online and offline mode.	Class notes to be checked regularly.
3 rd & 4 th week of October	Section - C	Business Basics, Chemistry in Industry	Discussion related to queries of assignments		
	Section - D	Making money, Intellectual property			
1 st week of November	Section - C	Pharmaceutical chemistry			Collection and evaluation of Assignments of students given in the month of August.
	Section - D	Fermentation			
2 nd and 3 rd week of November	SECTION A	Pesticides	Lecture and Group Discussion	Class Test	
4 th week of November	SECTION B	Different class of Pesticides	Lecture and Group Discussion	Class Test	
DECEMBER: Preparation Of House Exam, Conduction Of House Exam. Revision Of Questions Of House Exam					
MONTH OF JANUARY - WINTER BREAK					
February	Section - C	Pharmaceutical chemistry	Lecture and Notes	To solve previous year University questions	
	Section - D	Fermentation			
March	SECTION A	Pesticides	Lecture and Notes	To solve previous year University questions	
	SECTION B	Different class of Pesticides			
APRIL: FINAL ANNUAL PRACTICAL FOLLOWED BY PREPARATORY FOR THEORY EXAMINATION.					

1. Anita Jost
(Anita Jost)

2. Pooja Bhati
(POOJA BHATI)



Dr. MOHAN SINGH CHAUHAN
Principal
Shree Guru Gobind Singh Ji
Government College
Paonta Sahib
Dist. Sirmour (H.P.)-173025