Arts, Science and Commerce College, Indapur, Dist. Pune

TEACHING AND EVALUATION PLAN

Name of the teacher: Prof . Mane U.L	**A. Year:** 2022-2023		**Semester: V**
Subject: Physical Chemistry	**Paper: IV CHE-501**	**Class:** T Y B Sc	

Part I : Teaching Plan						Part II : Evaluation of Plan			
1	2	3	4	5	6	7	8	9	10
Sr. No .	**Month**	**Week**	**No. of working days**	**No. of periods available**	**Topics to be taught**	**No. of periods engaged**	**Topics taught**	**Deviation in periods**	**Remarks**
1	August 2022	2,3 & 4	10	10	**1. Quantum Chemistry [10 L]** Introduction, de Broglie hypothesis, The Heisenberg's uncertainty principle, quantisation of energy, Operators, Schrodinger wave equation, well behaved function, Particle in a one-, two and three-dimensional box (no derivation), Physical interpretation of the ψ and ψ2, sketching of wave function and probability densities for 1D box, degeneracy, applications to conjugated systems, zero-point energy and quantum tunnelling, Numerical.	10	**1. Quantum Chemistry [10 L]** Introduction, de Broglie hypothesis, The Heisenberg's uncertainty principle, quantisation of energy, Operators, Schrodinger wave equation, well behaved function, Particle in a one-, two and three-dimensional box (no derivation), Physical interpretation of the ψ and ψ2, sketching of wave function and probability densities for 1D box, degeneracy, applications to conjugated systems, zero-point energy and quantum tunnelling, Numerical	Nil	--
2	Septem ber 2022	1,2,3 &4	12	12	**2. Investigation of Molecular structure [16 L]** **Introduction:** Molar refraction and molecular structure, Dipole moment and molecular structure, electromagnetic spectrum, energy of molecules, Types of molecular spectra.	12	**2. Investigation of Molecular structure [16 L]** **Introduction:** Molar refraction and molecular structure, Dipole moment and molecular structure, electromagnetic spectrum, energy of molecules, Types of molecular spectra.	Nil	--

					Microwave Spectroscopy: **Infrared Spectroscopy:**		**Microwave Spectroscopy:** **Infrared Spectroscopy:**		
3	October 2022	1,2,3 &4	12	15	**Raman Spectroscopy:** **3. Photochemistry [10 L]** Introduction, Difference between thermal and photochemical processes, Laws of photochemistry: i) Grothus - Draper law ii) Stark-Einstein law, Quantum yield, Reasons for high and low quantum yield., Factors affecting Quantum yield, Experimental method for the determination of quantum yield, types of photochemical reactions - photosynthesis, photolysis, photocatalysis, photosensitization, Jablonski diagram depicting various processes occurring in the excited state: Qualitative description of fluorescence and phosphorescence, Chemiluminescence, Problems.	15	**Raman Spectroscopy:** **3. Photochemistry [10 L]** Introduction, Difference between thermal and photochemical processes, Laws of photochemistry: i) Grothus - Draper law ii) Stark-Einstein law, Quantum yield, Reasons for high and low quantum yield., Factors affecting Quantum yield, Experimental method for the determination of quantum yield, types of photochemical reactions - photosynthesis, photolysis, photocatalysis, photosensitization, Jablonski diagram depicting various processes occurring in the excited state: Qualitative description of fluorescence and phosphorescence, Chemiluminescence, Problems.	03	03 Extra lectures are taken

Semester VI **Paper: IV CHE- 601** **Year : 2022-2023**

Part I : Teaching Plan						Part II : Evaluation of Plan			
1	2	3	4	5	6	7	8	9	10
Sr. No.	Month	Week	No. of working days	No. of periods available	Topics to be taught	No. of periods engaged	Topics taught	Deviation in periods	Remarks
1	December 2022	1,2,3 & 4	12	12	**1. Electrochemical Cells [16 L]** Electrochemical cells, reversible and irreversible cells with examples, The e.m.f. of electrochemical cell and its measurement, The Weston standard cell, Reference electrodes: The primary reference electrode and Secondary reference electrodes, The Nernst equation for E.M.F. of a cell. Types of reversible electrodes, the sign convention for electrode potentials, Thermodynamics of reversible cells and reversible electrodes, E.M.F. and equilibrium constant of cell reaction, Electrochemical series, Types of concentration cells, liquid junction potential, salt bridge, Applications of emf measurements: 1. Determination of pH of a solution by using hydrogen electrode, quinhydrone electrode and glass electrodes 2. Potentiometric titrations: i) Acid-base titrations, (ii) Redox titrations. (iii) Precipitation titration.	12	**1. Electrochemical Cells [16 L]** Electrochemical cells, reversible and irreversible cells with examples, The e.m.f. of electrochemical cell and its measurement, The Weston standard cell, Reference electrodes: The primary reference electrode and Secondary reference electrodes, The Nernst equation for E.M.F. of a cell. Types of reversible electrodes, the sign convention for electrode potentials, Thermodynamics of reversible cells and reversible electrodes, E.M.F. and equilibrium constant of cell reaction, Electrochemical series, Types of concentration cells, liquid junction potential, salt bridge, Applications of emf measurements: 1. Determination of pH of a solution by using hydrogen electrode, quinhydrone electrode and glass electrodes 2. Potentiometric titrations: i) Acid-base titrations, (ii) Redox titrations. (iii) Precipitation titration.	Nil	--

2	January 2023	1,2,3 ,& 4	12	12	Batteries: Primary and Secondary batteries, applications for Secondary Batteries, Fuel Cells: Types of fuel cells, advantages, disadvantages of fuels cells, comparison of battery Vs fuel cell. **2. Crystal structure [10 L]** Types of Solids: Isotropy and Anisotropy, Laws of crystallography: Law of constancy of interfacial angles, Law of rational indices, Law of crystal symmetry, Weiss indices and Miller indices, Crystal Structure: Parameters of the Unit Cells, Cubic Unit Cells: Three Types of Cubic Unit Cells, Calculation of Mass of the Unit Cell, Methods of Crystal structure analysis:	12	Batteries: Primary and Secondary batteries, applications for Secondary Batteries, Fuel Cells: Types of fuel cells, advantages, disadvantages of fuels cells, comparison of battery Vs fuel cell. **2. Crystal structure [10 L]** Types of Solids: Isotropy and Anisotropy, Laws of crystallography: Law of constancy of interfacial angles, Law of rational indices, Law of crystal symmetry, Weiss indices and Miller indices, Crystal Structure: Parameters of the Unit Cells, Cubic Unit Cells: Three Types of Cubic Unit Cells, Calculation of Mass of the Unit Cell, Methods of Crystal structure analysis:	0	
3	Februar y 2023	1,2,3 ,& 4	12	12	**3. Nuclear Chemistry [10L]** Radioactivity, Types of Radiations, Properties of Radiations, Detection and Measurement of Radioactivity: Cloud chamber, Ionization Chamber, Geiger-Muller Counter, Scintillation Counter and Film Badges, Nuclear structure, Classification of nuclides, Types of Radioactive Decay, The Group Displacement Law, Kinetics of Radioactive Decay, Half-life, average life, Energy released in nuclear reaction, Mass Defect, Nuclear Binding Energy, Some applications of radio-isotopes as tracers: Chemical investigation –	12	**3. Nuclear Chemistry [10L]** Radioactivity, Types of Radiations, Properties of Radiations, Detection and Measurement of Radioactivity: Cloud chamber, Ionization Chamber, Geiger-Muller Counter, Scintillation Counter and Film Badges, Nuclear structure, Classification of nuclides, Types of Radioactive Decay, The Group Displacement Law, Kinetics of Radioactive Decay, Half-life, average life, Energy released in nuclear reaction, Mass Defect, Nuclear Binding Energy, Some applications of radio-isotopes as tracers: Chemical investigation – Esterification, Friedel - Craft reaction, Structural		

					Esterification, Friedel -Craft reaction, Structural determination – Phosphorus pentachloride, Age determination – use of tritium and C_{14} dating, Problems		determination – Phosphorus pentachloride, Age determination – use of tritium and C_{14} dating, Problems		

1 The plan should be prepared in duplicate.
2 One copy of the plan should be submitted at the beginning of the term after filling up columns 1 to 6.
3 The second copy must be retained by the teacher and submitted at the end of the term. Part second of the plan i. e. coumns 7 to 10 must be filled up progressively at the end of every week.

Signature of Teacher

Head
Department Of Chemistry
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Signature of Head of Department

Incharge
Science Faculty
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College,Indapur, Dist.Pune

Signature of Faculty In-charge

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COMMERCE COLLEGE
INDAPUR-413106 DIST-PUNE

Signature of the Principal

Arts, Science and Commerce College, Indapur, Dist. Pune.
TEACHING AND EVALUATION PLAN

Name of the teacher: Prof . Mane U.L	**A. Year:** 2022-2023	**Semester: III**
Subject: Physical & Analytical Chemistry	**Paper: I CH-301**	**Class:** S.Y.B.Sc

Part I : Teaching Plan						Part II : Evaluation of Plan			
1	2	3	4	5	6	7	8	9	10
Sr. No.	Month	Week	No. of working days	No. of periods available	Topics to be taught	No. of periods engaged	Topics taught	Deviation in periods	Remarks
1	August 2022	2,3 & 4	12	12	**1. Chemical Kinetics: [12 L]** Introduction to kinetics, the rates of chemical reactions – definition of rates, rate laws and rate constants, reaction order and molecularity, determination of rate law, factors affecting reaction rates, integrated rate laws – zeroth-order reactions, first-order reactions, second-order reactions	12	**1. Chemical Kinetics: [12 L]** Introduction to kinetics, the rates of chemical reactions – definition of rates, rate laws and rate constants, reaction order and molecularity, determination of rate law, factors affecting reaction rates, integrated rate laws – zeroth-order reactions, first-order reactions, second-order reactions (with equal and unequal	Nil	--

					(with equal and unequal initial concentration of reactants), half-life period, methods for determination order of a reactions, Arrhenius equation- temperature dependence of reaction rates, interpretation of Arrhenius parameters, reaction dynamics - collision theory and transition-state theory of bimolecular reactions, comparison of the two theories, Problems.		initial concentration of reactants), half-life period, methods for determination order of a reactions, Arrhenius equation- temperature dependence of reaction rates, interpretation of Arrhenius parameters, reaction dynamics - collision theory and transition-state theory of bimolecular reactions, comparison of the two theories, Problems.		
2	September 2022	1,2,3 &4	14	14	**2. Surface Chemistry [6L]** Introduction to surface chemistry - some basic terms related to surface chemistry adsorption, adsorption materials, factors affecting adsorption, characteristics of adsorption, types of adsorption, classification of adsorption isotherms, Langmuir adsorption isotherm, Freundlich's adsorption isotherm, BET theory (only introduction), application of adsorption, problems. **3. Errors in Quantitative Analysis [5 L]** Introduction to errors, limitations of analytical methods, classifications of errors, accuracy, precision, minimization of errors, significant figures and computation, methods of expressing accuracy and precision:	14	**2. Surface Chemistry [6L]** Introduction to surface chemistry - some basic terms related to surface chemistry adsorption, adsorption materials, factors affecting adsorption, characteristics of adsorption, types of adsorption, classification of adsorption isotherms, Langmuir adsorption isotherm, Freundlich's adsorption isotherm, BET theory (only introduction), application of adsorption, problems. **3. Errors in Quantitative Analysis [5 L]** Introduction to errors, limitations of analytical methods, classifications of errors, accuracy, precision, minimization of errors, significant figures and computation, methods of expressing accuracy and precision: mean and standard deviations, reliability of results and numerical.	Nil	--

					mean and standard deviations, reliability of results and numerical.				
3	October 2022	1,2 & 3	13	13	**4. Volumetric Analysis [13 L]** Introduction to volumetric analysis, classification of reactions in volumetric analysis, standard solutions, equivalents, normalities, and oxidation numbers, preparation of standard solutions, primary and secondary standards. **1. Neutralization titrations 2. ComplexometricTitrations 3. Redox Titrations: 4. Precipitation titrations:**	13	**4. Volumetric Analysis [13 L]** Introduction to volumetric analysis, classification of reactions in volumetric analysis, standard solutions, equivalents, normalities, and oxidation numbers, preparation of standard solutions, primary and secondary standards. **1. Neutralization titrations 2. ComplexometricTitrations 3. Redox Titrations: 4. Precipitation titrations:**	01	One Extra Lec taken

Semester IV **Paper: I CH-401** **Year : 2022-2023**

Part I : Teaching Plan						Part II : Evaluation of Plan			
1	2	3	4	5	6	7	8	9	10
Sr. No.	**Month**	**Week**	**No. of working days**	**No. of periods available**	**Topics to be taught**	**No. of periods engaged**	**Topics taught**	**Deviation in periods**	**Remarks**
1	December 2022	1,2,& 3	09	09	**1 1. Phase equilibrium [9L]** Introduction; definitions of phase, components and degrees of freedom of a system; stability of phases, criteria of phase equilibrium. Gibbs phase rule and its thermodynamic derivation, phase diagrams of one- component systems- water, carbon dioxide and	09	**1. Phase equilibrium [9L]** Introduction; definitions of phase, components and degrees of freedom of a system; stability of phases, criteria of phase equilibrium. Gibbs phase rule and its thermodynamic derivation, phase diagrams of one-component systems- water, carbon dioxide and sulphur systems,	Nil	--

					sulphur systems, problems.		problems.		
2	January 2023	1,2,3 ,& 4	12	12	**2. Ideal and real solutions [9L]** Introduction, chemical potential of liquids - ideal solutions, ideal dilute solutions -Raoult's and Henry's Law, liquid mixtures, phase diagram of binary systems : liquids -vapour pressure diagrams, temperature composition diagrams, liquid-liquid phase diagrams, solubility of partially miscible liquids-critical solution temperature, effect of impurity on partially miscible liquids, Problems. **3. Conductometry [6 L]** Introduction, Electrolytic Conductance, Resistance, conductance, Ohm's law, cell constant, specific and equivalent conductance, molar conductance, variation of equivalent and specific conductance with concentrations, Kohlrausch's law and its applications, conductivity cell, conductivity meter, Whetstone Bridge, determination of cell constant, conductometric titrations (strong acid-strong base, strong acid-weak base, weak acid strong base) and Numericals.	15	**2. Ideal and real solutions [9L]** Introduction, chemical potential of liquids - ideal solutions, ideal dilute solutions -Raoult's and Henry's Law, liquid mixtures, phase diagram of binary systems : liquids -vapour pressure diagrams, temperature composition diagrams, liquid-liquid phase diagrams, solubility of partially miscible liquids-critical solution temperature, effect of impurity on partially miscible liquids, Problems. **3. Conductometry [6 L]** Introduction, Electrolytic Conductance, Resistance, conductance, Ohm's law, cell constant, specific and equivalent conductance, molar conductance, variation of equivalent and specific conductance with concentrations, Kohlrausch's law and its applications, conductivity cell, conductivity meter, Whetstone Bridge, determination of cell constant, conductometric titrations (strong acid-strong base, strong acid-weak base, weak acid strong base) and Numericals.	03	03 Extra Lectures are taken.

3	February 2023	1,2,3 ,& 4	12	12	**4. Colorimetry: [6 L]** Introduction, interaction of electromagnetic radiation with matter, essential terms: radiant power, transmittance, absorbance, molar, Lamberts Law, Beer's Law, Lambert-Beer's Law, molar absorptivity, deviations from Beer's Law, Colorimeter: *Principle, Construction and components, Working*. Applications–unknown conc. By calibration curve method, Determination of unknown concentration of Fe(III) by thiocynate method, Numericals. **5. Column Chromatography [6 L]** Introduction, Principle of Column Chromatography, **Ion Exchange Chromatography:** Ion exchange resins, action of ion exchange resin (Ion exchange equilibria, Ion exchange capacity), Experimental technique, Application: i) Separation of Metal ions / non-metal ions on Ion Exchange Chromatography (*Zn(II) and Mg(II), Cl- and Br-),* ii) Purification of water. **Adsorption Chromatography – Liquid solid chromatography**: Introduction, the technique of conventional chromatography, column packing materials,	12	**4. Colorimetry: [6 L]** Introduction, interaction of electromagnetic radiation with matter, essential terms: radiant power, transmittance, absorbance, molar, Lamberts Law, Beer's Law, Lambert-Beer's Law, molar absorptivity, deviations from Beer's Law, Colorimeter: *Principle, Construction and components, Working*. Applications–unknown conc. By calibration curve method, Determination of unknown concentration of Fe(III) by thiocynate method, Numericals. **5. Column Chromatography [6 L]** Introduction, Principle of Column Chromatography, **Ion Exchange Chromatography:** Ion exchange resins, action of ion exchange resin (Ion exchange equilibria, Ion exchange capacity), Experimental technique, Application: i) Separation of Metal ions / non-metal ions on Ion Exchange Chromatography (*Zn(II) and Mg(II), Cl- and Br-),* ii) Purification of water. **Adsorption Chromatography –Liquid solid chromatography**: Introduction, the technique of conventional chromatography, column packing materials, Selection of solvent for adsorption chromatography, Adsorption column preparation and loading, Application – Purification of		

					Selection of solvent for adsorption chromatography, Adsorption column preparation and loading, Application – Purification of anthracene Size Exclusion Chromatography.		anthracene Size Exclusion Chromatography.		

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3 The second copy must be retained by the teacher and submitted at the end of the term. Part second of the plan i. e. coumns 7 to 10 must be filled up progressively at the end of every week.

Signature of Teacher

Signature of Head of Department

Head
Department Of Chemistry
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Signature of Faculty In-charge

Incharge
Science Faculty
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College,Indapur, Dist.Pune

Signature of the Principal

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INDAPUR-413106 DIST-PUNE

Arts, Science and Commerce College, Indapur, Dist. Pune

TEACHING AND EVALUATION PLAN

Name of the teacher: Prof Bhore J.B.
Subject: Organic Chemistry
Year: 2022-2023
Part I : Teaching Plan
CHO-607
Semester: II
Class: T.Y.B.Sc.

1	2	3	4	5	Part II : Evaluation of Plan 6	7	8	9	10
Sr. No.	Month	Week	No. of working days	No. of periods available	Topics to be taught	No. of periods engaged	Topics taught	Deviation in periods	Remarks
1	Dec. 2022	3&4	7	02	Introduction spectroscopy- Types - spectroscopy,electromagnetic spectrum,wavelength,amplitude, frequency,wavenumber, energy and their relations and conversions	02	Introduction spectroscopy- Types - spectroscopy,electromagnetic spectrum,wavelength,amplitude, frequency,wavenumber, energy and their relations and conversions	Nil	-
1	Jan. 2022	1&2	11	04	Electromagnetic radiations, electronic transitions, λmax & εmax, chromophore, auxochrome, bathochromic and hypsochromic shifts, Application of visible, ultraviolet spectroscopy in organic molecules	04	Electromagnetic radiations, electronic transitions, λmax & εmax, chromophore, auxochrome, bathochromic and hypsochromic shifts, Application of visible, ultraviolet spectroscopy in organic molecules	Nil	-
2	Jan. 2022	3&4	11	06	Application of electronic spectroscopy, Woodward rules for calculating lambda max of conjugated dienes unsat.comp Infra-RedSpectroscopy,	06	Application of electronic spectroscopy, Woodward rules for calculating lambda max of conjugated dienes unsat.comp Infra-RedSpectroscopy,	Nil	-
3	Feb. 2022	1&2	11	06	IR spectra of alkanes, alkenes and simple alcohols	06	IR spectra of alkanes, alkenes and simple alcohols	Nil	-
	Feb. 2022	3&4	11	06	Nuclear Magnetic Resonance Spectroscopy , chemical shift, shielding, & deshielding effect. Measurement of chemical shift	06	Nuclear Magnetic Resonance Spectroscopy chemical shift, shielding, & deshielding effect. Measurement of chemical shift	Nil	-
	March 2022	1&2	11	06	TMS as reference and its advantages, peak area, integration, spin-spin coupling, coupling constants, J-value , problems	06	TMS as reference and its advantages, peak area, integration, spin-spin coupling, coupling constants, J-value , problems	Nil	-
	March 2022	3&4	11	06	Stereochemistry of Disubstituted Cyclohexane and Decalin Recapitulation, Geometrical and optical isomerism of 1,3-dimethyl	06	Stereochemistry of Disubstituted Cyclohexane and Decalin [04 L] Recapitulation, Geometrical and optical isomerism of 1,3- dimethyl	Nil	-
	April 2022	1&2	11	04	Geometrical and optical isomerism of 1,4-dimethyl cyclohexane with their stability and energy calculations. Conformations of decalin and their stability	04	Geometrical and optical isomerism of 1,4-dimethyl cyclohexane with their stability and energy calculations. Conformations of decalin and their stability	Nil	-
	April 2022	3	6	02	Problems based on UV,IR,NMR	02	Problems based on UV,IR,NMR	Nil	-

Sign. of Teacher

Sign. of Head of Department

Head
Department Of Chemistry
Arts,Science & Commerce
College,Indapur,Dist.Pune

Sign. of Faculty In-charge

Incharge
Science Faculty
Arts,Science & Commerce
College,Indapur, Dist.Pune

Sign. of the Principal

Arts, Science and Commerce College, Indapur, Dist. - Pune

TEACHING AND EVALUATION PLAN

Arts, Science and Commerce College, Indapur, Dist. - Pune

TEACHING AND EVALUATION PLAN

Name of the teacher: Prof Bhore J.B. Year: 2022-2023

Subject: Organic Chemistry Class: F.Y.B.Sc.

Semester: I

CHO-102

Part I : Teaching Plan

Part II : Evaluation of Plan

1	2	3	4	5	6	7	8	9	10
Sr. No.	Month	Week	No. of working days	No. of periods available	Topics to be taught	No. of periods engaged	Topics taught	Deviation in periods	Remarks
1	July 2022	3&4	7	02	Fundamentals of Organic Chemistry .	02	Fundamentals of Organic Chemistry .	Nil	-
2	Aug 2022	1&2	10	02	Reactive Intermediates: Carbocations, Carbanions and free radicals. Strength of organic acids and bases:	02	Reactive Intermediates: Carbocations, Carbanions and free radicals. Strength of organic acids and bases:		
3	Aug 2022		11	02	Conformations with respect to ethane, butane and cyclohexane.	02	Conformations with respect to ethane, butane and cyclohexane.	Nil	-
4	Sept		11	02	Aliphatic Hydrocarbons Functional group .	02	Aliphatic Hydrocarbons Functional group .		
5	Sept 2022		11	02	**Alkenes:**Carbons)*Preparation:* Elimination reactions: Dehydration of alkenes	02	**Alkenes:**Carbons)*Preparation:* Elimination reactions: Dehydration of alkenes		
6	Oct 2022		10	02	(alk. KMnO4) and trans-addition (bromine), Addition of HX (Markownikoff's and anti-Markownikoff's addition), Hydration, Ozonolysis, oxymecuration-demercuration, Hydroboration-oxidation.	02	(alk. KMnO4) and trans-addition (bromine), Addition of HX (Markownikoff's and anti-Markownikoff's addition), Hydration, Ozonolysis, oxymecuration-demercuration, Hydroboration-oxidation.		
7	Oct 2022	3&4	10	02	Alkynes-	02	Alkynes-	Nil	-
8	Nov. 2022	1&2	11	02	*Reactions:* formation of metal acetylides, addition of bromine and alkaline KMnO4, ozonolysis and oxidation with hot alk. KMnO4.	02	*Reactions:* formation of metal acetylides, addition of bromine and alkaline KMnO4, ozonolysis and oxidation with hot alk. KMnO4.	Nil	-

Sign. of Teacher **Sign. of Head of Department** **Sign. of Faculty In-charge** **Sign. of the Principal**

Head
Department Of Chemistry
Arts,Science & Commerce
College,Indapur,Dist.Pune

Science Faculty
Arts,Science & Commerce
College,Indapur, Dist.Pune

Arts, Science and Commerce College, Indapur, Dist. - Pune

TEACHING AND EVALUATION PLAN

Name of the teacher: Prof Bhore J.B. | Semester: II | Year: 2022-2023
Subject: Organic Chemistry | CHO-609 | Class: T.Y.B.Sc.
Part I : Teaching Plan | Part II : Evaluation of Plan

1	2	3	4	5	6	7	8	9	10
Sr. No.	Month	Week	No. of working days	No. of periods available	Topics to be taught	No. of periods engaged	Topics taught	Deviation in periods	Remarks
1	Dec. 2019	3&4	7	04	Interpretation of IR and NMR spectra (2 Experiments of each type) 1. Determination of functional group of organic compound	03	Interpretation of IR and NMR spectra (2 Experiments of each type) 1. Determination of functional group of organic comp.	Nil	-
1	Jan. 2019	1&2	11	08	Determination of structure of organic compound from given NMR spectra. (Ethyl alcohol, Cis-2-butene, Trans-2-butene, Benzoic acid,		Determination of structure of organic compound from given NMR spectra. (Ethyl alcohol, Cis-2-butene, Trans-2-butene, Benzoic acid,	Nil	-
2	Jan. 2019	3&4	11	08	B) Organic Estimations (Any Three) 1. Estimation of glucose 2. Estimation of glycine 3. Saponification value of oil 4. Estimation of Alkali content in Antacid using HCl.	08	B) Organic Estimations (Any Three) 1. Estimation of glucose 2. Estimation of glycine 3. Saponification value of oil 4. Estimation of Alkali content in Antacid using HCl.	Nil	-
3	Feb. 2019	1&2	11	08	C) Organic Extractions (Any Three) 1. Caffeine from tea leaves 2. Eugenol from cloves	08	C) Organic Extractions (Any Three) 1. Caffeine from tea leaves 2. Eugenol from cloves	Nil	-
	Feb. 2019	3&4	11	08	3. Lycopene from tomato peels 4. Cinnamic acid from cinnamon	08	3. Lycopene from tomato peels 4. Cinnamic acid from cinnamon	Nil	-
	March 2019	1&2	11	08	5. Trimyristin from nutmeg D) Column chromatography 1. Separation of mixture of aldehyde	08	5. Trimyristin from nutmeg D) Column chromatography 1. Separation of mixture of aldehyde	Nil	-
	March 2019	3&4	11	08	2. Separation of mixture of O-nitrophenol and P-nitrophenol by column chromatography	08	2. Separation of mixture of O-nitrophenol and P-nitrophenol by column chromatography	Nil	-

Sign. of Teacher | Sign. of Head of Department | Sign. of Faculty In-charge | Sign. of the Principal

Head
Department Of Chemistry
Arts,Sci[illegible] Commerce
College,Ind[illegible],Dist.Pune

Incharge
Science Faculty
Arts,Science & Commerce
College[illegible] Dist.Pune

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TEACHING AND EVALUATION PLAN

Name of the teacher: Prof Bhore J.B.

Subject: Organic Chemistry

Semester: I

CHO-102

Year: 2022-2023

Class: F.Y.B.Sc.

Part I : Teaching Plan

Part II : Evaluation of Plan

1	2	3	4	5	6	7	8	9	10
Sr. No.	Month	Week	No. of working days	No. of periods available	Topics to be taught	No. of periods engaged	Topics taught	Deviation in periods	Remarks
1	July 2022	3&4	7	02	Fundamentals of Organic Chemistry .	02	Fundamentals of Organic Chemistry .	Nil	-
2	Aug 2022	1&2	10	02	Reactive Intermediates: Carbocations, Carbanions and free radicals. Strength of organic acids and bases:	02	Reactive Intermediates: Carbocations, Carbanions and free radicals. Strength of organic acids and bases:		
3	Aug 2022		11	02	Conformations with respect to ethane, butane and cyclohexane.	02	Conformations with respect to ethane, butane and cyclohexane.	Nil	-
4	Sept		11	02	Aliphatic Hydrocarbons Functional group .	02	Aliphatic Hydrocarbons Functional group .		
5	Sept 2022		11	02	**Alkenes:**Carbons)*Preparation:* Elimination reactions: Dehydration of alkenes	02	**Alkenes:**Carbons)*Preparation:* Elimination reactions: Dehydration of alkenes		
6	Oct 2022		10	02	(alk. KMnO4) and trans-addition (bromine), Addition of HX (Markownikoff's and anti-Markownikoff's addition), Hydration, Ozonolysis, oxymecuration-demercuration, Hydroboration-oxidation.	02	(alk. KMnO4) and trans-addition (bromine), Addition of HX (Markownikoff's and anti-Markownikoff's addition), Hydration, Ozonolysis, oxymecuration-demercuration, Hydroboration-oxidation.		
7	Oct 2022	3&4	10	02	Alkynes-	02	Alkynes-	Nil	-
8	Nov. 2022	1&2	11	02	*Reactions:* formation of metal acetylides, addition of bromine and alkaline KMnO4, ozonolysis and oxidation with hot alk. KMnO4.	02	*Reactions:* formation of metal acetylides, addition of bromine and alkaline KMnO4, ozonolysis and oxidation with hot alk. KMnO4.	Nil	-

Sign. of Teacher BBH

Sign. of Head of Department BBH

Head
Department Of Chemistry
Arts,Science & Commerce
College Indapue,Dist.Pune

Sign. of Faculty In-Charge

Science Faculty
Arts,Science & Commerce
College,Indapur, Dist.Pune

Sign. of the Principal

Commerce College, Indapur, Dist. - Pune

TEACHING AND EVALUATION PLAN

Name of the teacher: Prof Bhore J.B.

Subject: Organic Chemistry

Semester: I

Part I : Teaching Plan — CHO-509 — Year: 2022-2023

Part II : Evaluation of Plan — Class: T.Y.B.Sc.

1	2	3	4	5	6	7	8	9	10
Sr. No.	Month	Week	No. of working days	No. of periods available	Topics to be taught	No. of periods engaged	Topics taught	Deviation in periods	Remarks
1	July2022	3&4	7	04	Organic Chemistry Practical- Total 12 Experiments to be performed A) Separation of Binary Mixtures and Qualitative Analysis) a) Solid-Solid	03	Organic Chemistry Practical- Total 12 Experiments to be performed A) Separation of Binary Mixtures and Qualitative Analysis) a) Solid-Solid	Nil	-
1	Aug 2022	1&2	11	08	Separation of Binary Mixtures and Qualitative Analysis - 2Mixtures b) Solid-Liquid (2 Mixtures) c) Liquid-Liquid		Separation of Binary Mixtures and Qualitative Analysis - 2Mixtures b) Solid-Liquid (2 Mixtures) c) Liquid-Liquid	Nil	-
2	Aug 2022	3&4	11	08	Separation of Binary Mixtures and Qualitative Analysis - Liquid-Liquid	08	Separation of Binary Mixtures and Qualitative Analysis - Liquid-Liquid	Nil	-
3	Sept 2022	1&2	11	08	1.Preparation of dibenzalpropanone from benzaldehyde and acetone using LiOH.H2O/NaOH 2. Nitration of phenol or substituted phenols using CaNO3.	08	1.Preparation of dibenzalpropanone from benzaldehyde and acetone using LiOH.H2O/NaOH 2. Nitration of phenol or substituted phenols using CaNO3.	Nil	-
	Sept 2022	3&4	11	08	3. Bromination of acetamide using ferric ammonium nitrate and KBr in aqueous medium.	08	3. Bromination of acetamide using ferric ammonium nitrate and KBr in aqueous medium.	Nil	-
	Oct.2022	1&2	11	08	1. Preparation of 1, 4-dihydropyrimidinone from ethyl acetoacetate, benzaldehyde and urea using oxalic acid as catalyst. 2. Preparation p-Iodonitrobenzene from p-Nitroaniline by Sandmeyer Reaction	08	1. Preparation of 1, 4-dihydropyrimidinone from ethyl acetoacetate, benzaldehyde and urea using oxalic acid as catalyst. 2. Preparation p-Iodonitrobenzene from p-Nitroaniline by Sandmeyer Reaction	Nil	-
	Oct. 2022	3&4	11	08	3. Preparation P-chloro benzoic acid and p-chloro benzyl alcohol from p-chloro benzaldehyde. C) Preparations of Organic Derivative 1. Amide derivative of Carboxylic acid	08	3. Preparation P-chloro benzoic acid and p-chloro benzyl alcohol from p-chloro benzaldehyde. C) Preparations of Organic Derivative 1. Amide derivative of Carboxylic acid	Nil	-
	Nov. 2022	1&2	11	08	2. Glucosazone derivative of Glucose 3. Paracetamol from p-Aminophenol	08	2. Glucosazone derivative of Glucose 3. Paracetamol from p-Aminophenol	Nil	-

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TEACHING AND EVALUATION PLAN

Name of the teacher: Prof. Deokate Kavita bhagwan **Year: 2022-20223** **Semester: VI**

Subject:Inorganic Chemistry **Paper: CH-604 Inorganic chemistry II** **Class: TYBSc**

Part I : Teaching Plan						Part II : Evaluation of Plan			
1	2	3	4	5	6	7	8	9	10
Sr. No.	Month	Week	No. of working days	No. of periods available	Topics to be taught	No. of periods engaged	Topics taught	Deviation in periods	Remarks
1	Dec 2021	3 &4	12	6	Organometallic chemistry	8	Organometallic chemistry	2	Extra lecture was conducted
2	January 2022	1& 2	12	6	Homogeneous and heterogeneous catalysis	4	Homogeneous and heterogeneous catalysis	Nil	--
3	January 2022	3 & 4	11	6	Homogeneous and heterogeneous catalysis ,Bioinorganic chemistry	4	Homogeneous and heterogeneous catalysis ,Bioinorganic chemistry	Nil	--
4	Feb 2022	1 &2	11	6	Bioinorganic chemistry and Inorganic polymers	4	Bioinorganic chemistry and Inorganic polymers	Nil	--
5	Mar 2022	1 & 2	12	6	Inorganic solids or ionic liquid of technological importance	4	Inorganic solids or ionic liquid of technological importance	Nil	--

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TEACHING AND EVALUATION PLAN

Name of the teacher: Dr. M. P. Shinde **Year:** 2022-2023
Semester: I

Subject: Analytical Chemistry -I **Paper:** IV CH-502 **Class:** T Y B Sc

Part I : Teaching Plan						Part II : Evaluation of Plan			
1	2	3	4	5	6	7	8	9	10
Sr. No.	Month	Week	No. of working days	No. of periods available	Topics to be taught	No. of periods engaged	Topics taught	Deviation in periods	Remark
1	August 2022	2	9	8	**Gravimetry** Introduction to gravimetric analysisPrecipitation methods	8	**Gravimetry (9 L)** Introduction to gravimetric analysis, Precipitation methods	Nil	--
2	Sept 2022	2	12	8	Applications of gravimetry & problems & introduction to Inorganic Qualitative analysis	10	Applications of gravimetry & problems & introduction to Inorganic Qualitative analysis	Nil	--
3	Sept 2022	2	11	7	Solution preparation, separation of basic radicals & acidic radicals & removal of interfering radicals	8	Solution preparation, separation of basic radicals & acidic radicals & removal of interfering radicals	1	Extra lecture wa conducted on sunday
4	OCT 202	2	11	8	Thermal methods of analysis & its Applications & Parameters of Instrumental analysis	8	Thermal methods of analysis & its Applications & Parameters of Instrumental analysis	Nil	--
5	OCT 2022 NOV 2022	4	20	12	UV-Visible spectroscopy: Theory, Instrumentation, Applications and Problems	12	UV-Visible spectroscopy: Theory, Instrumentation, Applications and Problems	Nil	--

Semester II | Paper: IV CH-611B-Chemistry Cosmetics and Perfumes | Year : 2022-2023

Part I : Teaching Plan						Part II : Evaluation of Plan			
1	2	3	4	5	6	7	8	9	10
Sr. No.	Month	Week	No. of working days	No. of periods available	Topics to be taught	No. of periods engaged	Topics taught	Deviation in periods	Remark
1	February 2023	2	11	8	Chemical composition, preparation and uses of some cosmetics	8	Chemical composition, preparation and uses of some cosmetics	Nil	–
2	March 2023	3	11	12	A general study including chemical composition, preparation and uses	11	A general study including chemical composition, preparation and uses	1	–
3	March and April 2023	3	12	12	**Chemistry of Perfumes and fragrances:** History of perfume, classification sources of fragrance, Development and role of natural products in cosmetics	12	**Chemistry of Perfumes and fragrances:** History of perfume, classification sources of fragrance, Development and role of natural products in cosmetics	Nil	–
4	April 2023	1	12	4	**Rules and regulations for cosmetic industry:**	4	**Rules and regulations for cosmetic industry:**		–

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TEACHING AND EVALUATION PLAN

Name of the Teacher : Mr. Namawarte R. M. | Year: 2022-23 | Semester: I

Subject: Inorganic Chemistry | Paper: CH - 504 | Class: T.Y.B.Sc.

Part I : Teaching Plan						Part II : Evaluation of Plan			
1 Sr. No.	2 Month	3 Week	4 No. of working days	5 No. of periods available	6 Topics to be taught	7 No. of periods engaged	8 Topics taught	9 Deviation in periods	10 Remarks
1	Sept.	1&2	9	6	1. Molecular Orbital Theory Limitations of VBT,LCAO principle, types of combinations of MOs,	6	2. Molecular Orbital Theory Limitations of VBT,LCAO principle, types of combinations of MOs,.	Nil	
		3&4	12	6	Inorganic reaction mechanism	6	Inorganic reaction mechanism	Nil	
		5	4	2	Chemistry of transition elements	2	Chemistry of transition elements	Nil	
2	Oct.	1&2	7	3	Chemistry of transition elements	3	Chemistry of transition elements	Nil	
		3&4	10	6	Chemistry of f-block elements Lanthanides	6	Chemistry of f-block elements Lanthanides	Nil	
		5	6	3	Actinides	3	Actinides	Nil	
3	Nov.	1&2	10	6	Metals Semiconductors and superconductors	6	Metals Semiconductors and superconductors	Nil	
		3&4	11	6	Metals Semiconductors and superconductors	6	Metals Semiconductors and superconductors	Nil	

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TEACHING AND EVALUATION PLAN

Name of the teacher: Mr. Nanaware R.M. Year: 2022-23 Semester: II

Subject: Chemistry Paper : Inorganic Chemistry CH-605 Class: T.Y.B.Sc.

Part I : Teaching Plan						Part II : Evaluation of Plan			
1	2	3	4	5	6	7	8	9	10
Sr. No.	Month	Week	No. of working days	No. of periods available	Topics to be taught	No. of periods engaged	Topics taught	Deviation in periods	Remarks
1	Jan	1&2	07	4	Ionic solids Crystal structures SC,BCC, FCC, Close packing, Tetrahedral and octahedral voids	4	Ionic solids Crystal structures SC,BCC, FCC, Close packing, Tetrahedral and octahedral voids	Nil	
		3&4	12	6	Bon Haber cycle, Stoichiometric defects. Ionic radius	6	Bon Haber cycle, Stoichiometric defect's. Ionic radius	Nil	
		5	5	3	Acid-Bases and Donor-acceptor Chemistry	3	Acid-Bases and Donor-acceptor Chemistry	Nil	
2	Feb	1&2	11	6	Acid-Bases and Donor-acceptor Chemistry	6	Acid-Bases and Donor-acceptor Chemistry	Nil	
		3&4	11	6	Introduction to Nano chemistry	6	Introduction to Nano chemistry	Nil	
3	March	1&2	10	5	Chemical Toxicology	5	Chemical Toxicology	Nil	
		3&4	11	3	Chemistry of zeolites	03	Chemistry of zeolites	Nil	
		5	4	2	Chemistry of zeolites	2	Chemistry of zeolites	Nil	

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TEACHING AND EVALUATION PLAN

Name of the teacher: Prof. Mane Pranjali Suryakant | Year: 2022-2023 | Semester: III

Subject: Inorganic and Organic Chemistry | Paper- II CH-302 Inorganic and Organic chemistry | Class: S.Y.B.Sc

Part I : Teaching Plan						Part II : Evaluation of Plan			
1	2	3	4	5	6	7	8	9	10
Sr. No.	Month	Week	No. of working days	No. of periods available	Topics to be taught	No. of periods engaged	Topics taught	Deviation in periods	Remarks
1	Aug 2022	3 & 4	11	6	**Molecular Orbital Theory of Covalent Bonding:** Introduction to Molecular Orbital Method (MOT) and postulates of MO theory, LCAO	6	**Molecular Orbital Theory of Covalent Bonding:** Introduction to Molecular Orbital Method (MOT) and postulates of MO theory, LCAO	Nil	
2	Sep 2022	1& 2	12	6	**Introduction to Coordination Compounds:** Double salt and coordination compound, basic definitions	8	**Introduction to Coordination Compounds:** Double salt and coordination compound, basic definitions	2	Extra lecture done on sunday
II 3	Sep 2022	3 & 4	11	6	**Aromatic Hydrocarbons:** Introduction and IUPAC nomenclature, preparation, Electrophilic substitution.	7	**Aromatic Hydrocarbons:** Introduction and IUPAC nomenclature, preparation, Electrophilic substitution.	1	Extra lecture done on sunday
4	Oct 2022	1 &2	11	8	**Alkyl and Aryl Halides and Aryl Halides:** Introduction and IUPAC nomenclature, *Preparation and Reactions.*	6	**Alkyl and Aryl Halides and Aryl Halides:** Introduction and IUPAC nomenclature, *Preparation and Reactions.*	Nil	
5	Oct 2022	3 & 4	12	8	**Alcohols, Phenols and Ether** and. **Phenols (Phenol case):** Introduction and IUPAC nomenclature, *Preparation, Reactions and* **Ethers.**	6	**Alcohols, Phenols and Ether** and. **Phenols (Phenol case):** Introduction and IUPAC nomenclature, *Preparation, Reactions and* **Ethers.**	Nil	

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Semester IV

Paper: CH-402 Inorganic and Organic Chemistry

Year: 2022-2023

Part I: Teaching Plan						Part II : Evaluation of Plan			
1	2	3	4	5	6	7	8	9	10
Sr. No.	Month	Week	No. of working days	No. of periods available	Topics to be taught	No. of periods engaged	Topics taught	Deviation in periods	Remarks
1	Jan 2023	1 & 4	12	6	**Isomerism in coordination complexes:** Introduction, polymerization isomerism.	6	**Isomerism in coordination complexes:** Introduction.	Nil	
2	Jan 2023	1 &2	11	6	**Valance Bond Theory of Coordination Compounds:** Aspects and assumptions of VBT, applications of VBT on the basis of hybridization.	6	**Valance Bond Theory of Coordination Compounds:** Aspects and assumptions of VBT, applications of VBT on the basis of hybridization	Nil	
3	Feb 2023	1 & 2	12	6	**Crystal Field Theory:** Shapes of d-orbitals, Crystal field Theory (CFT): Assumptions, Application of CFT **Aldehydes and Ketones:** Introduction and IUPAC nomenclature, *Preparation, Reactions.*	6	**Crystal Field Theory:** Shapes of d-orbitals, Crystal field Theory (CFT): Assumptions, Application of CFT. **Aldehydes and Ketones:** Introduction and IUPAC nomenclature, *Preparation, Reactions.*	Nil	
4	Feb 2023	3&4	11	6	**Carboxylic acids and their derivatives:** Introduction and IUPAC nomenclature, *Preparation. Reactions.* **Carboxylic acid derivatives:** *Preparation and reactions.*	6	**Carboxylic acids and their derivatives:** Introduction and IUPAC nomenclature, *Preparation Reactions.* **Carboxylic acid derivatives:** *Preparation and reactions.*	Nil	
5	Mar 2023	1&2	12	6	**Amines and Diazonium Salts:** Introduction and IUPAC nomenclature, *Preparation and Reactions.* **Stereochemistry of Cyclohexane:** Bayer's strain theory, heat of combustion of cycloalkanes	6	**Amines and Diazonium Salts:** Introduction and IUPAC nomenclature, *Preparation and Reactions.* **Stereochemistry of Cyclohexane:** Bayer's strain theory, heat of combustion of cycloalkanes, structure of cyclohexane.	Nil	

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TEACHING AND EVALUATION PLAN

Name of the teacher: Dr. Bhosale R.R	**Year:** 2022-2023	**Semester:** I
Subject: Physical Chemistry	**Paper:** I CH- 101	**Class:** F. Y. B. Sc.

Part I : Teaching Plan						Part II : Evaluation of Plan			
1	2	3	4	5	6	7	8	9	10
Sr. No.	Month	Week	No. of working days	No. of periods available	Topics to be taught	No. of periods engaged	Topics taught	Deviation in periods	Remarks
1	July2022	3 & 4	9	6	**Chemical Energetics:** Important principles of thermochemistry. Concept of standard state and standard enthalpies,	6	**Chemical Energetics:** Important principles of thermochemistry. Concept of standard state and standard enthalpies,	Nil	--
2	Aug 2022	1& 2	12	6	Calculation of bond energy, bond dissociation energy, Kirchhoff's equation. Statement of Third Law of thermodynamics ,problems	6	Calculation of bond energy, bond dissociation energy, Kirchhoff's equation. Statement of Third Law of thermodynamics ,problems	1	Extra lecture was conducted on sunday
3	Aug. 2022	3 & 4	11	6	**Chemical Equilibrium:** Free Energy and equilibrium - Concept, Definition and significance, response of equilibria to conditions- response to pressure , response to temperature,	6	**Chemical Equilibrium:** Free Energy and equilibrium - Concept, Definition and significance, response of equilibria to conditions- response to pressure , response to temperature,	Nil	----
4	Sept. 2022	1 &2	11	6	The perfect gas equilibrium, Van't Haff equation, Value of K at different temperature, Problems	6	The perfect gas equilibrium, t. Van't Haff equation, Value of K at different temperature, Problems	1	Extra lecture was conducted
5	Sept. 2022	3 & 4	12	6	**Ionic Equilibria:** Strong, moderate and weak electrolytes, degree of ionization, factors affecting degree of ionization, ionization constant,	6	**Ionic Equilibria:** Strong, moderate and weak electrolytes, degree of ionization, factors affecting degree of ionization, ionization constant,	Nil	---

Semester I **Paper: I CH-101** **Year : 2022-2023**

Part I : Teaching Plan						Part II : Evaluation of Plan			
1	2	3	4	5	6	7	8	9	10
Sr. No.	Month	Week	No. of working days	No. of periods available	Topics to be taught	No. of periods engaged	Topics taught	Deviation in periods	Remarks
6	Oct. 2022	1 & 2	11	6	Ionization of weak acids and bases, pH scale, common ion effect. Salt hydrolysis-calculation of hydrolysis constant, degree of hydrolysis and pH for different salts. Buffer solutions.	6	Ionization of weak acids and bases, pH scale, common ion effect. Salt hydrolysis-calculation of hydrolysis constant, degree of hydrolysis and pH for different salts. Buffer solutions.	Nil	--
7	Oct. 2022	3 &4	11	6	Solubility and solubility product of sparingly soluble salts– applications of solubility product principle.	6	Solubility and solubility product of sparingly soluble salts– applications of solubility product principle.	4	Extra lecture was conducted

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TEACHING AND EVALUATION PLAN

Name of the teacher: Dr. Bhosale R.R	**Year:** 2022-2023	**Semester:** II
Subject: Analytical Chemistry	**Paper:** I CH- 202	**Class:** F. Y. B. Sc.

Part I : Teaching Plan						Part II : Evaluation of Plan			
1	2	3	4	5	6	7	8	9	10
Sr. No.	Month	Week	No. of working days	No. of periods available	Topics to be taught	No. of periods engaged	Topics taught	Deviation in periods	Remarks
1	Non.2022	3 & 4	9	6	**Introduction to Analytical Chemistry: Calculations used in Analytical Chemistry:** mole, millimole and Calculations, significant figures	6	**Introduction to Analytical Chemistry: Calculations used in Analytical Chemistry:** mole, millimole and Calculations, significant figures	Nil	--
2	Dec. 2022	1& 2	12	6	Solution and their concentrations- Chemical Stoichiometry – Empirical and Molecular Formulas, Problems.	6	Solution and their concentrations- Chemical Stoichiometry – Empirical and Molecular Formulas, Stoichiometric Calculations, Problems.	1	Extra lecture was conducted
3	Dec. 2022	3 & 4	11	6	**Qualitative Analysis of Organic Compounds:** binary mixtures, Lassiagen's test. Purification- recrystallization, distillation, sublimation	6	**Qualitative Analysis of Organic Compounds:** binary mixtures, Lassiagen's test. Purification recrystallization, distillation, sublimation	Nil	----
4	Jan. 2023	1 &2	11	6	**Chromatographic Techniques –** Paper and Thin Layer, IUPAC definition of chromatography.	6	**Chromatographic Techniques** –Paper and Thin Layer ,IUPAC definition of chromatography	1	Extra lecture was conducted
5	Jan. 2023	3 & 4	12	6	Paper, Thin Layer, Ion exchange , Gas permeation, affinity, Gas, Supercritical fluid, HPLC,	6	Paper, Thin Layer, Ion exchange , Gas permeation, affinity, Gas, Supercritical fluid, HPLC,	Nil	---

Semester II **Paper: I CH-202** **Year : 2022-2023**

Part I : Teaching Plan						Part II : Evaluation of Plan			
1	2	3	4	5	6	7	8	9	10
Sr. No.	Month	Week	No. of working days	No. of periods available	Topics to be taught	No. of periods engaged	Topics taught	Deviation in periods	Remarks
6	Feb. 2023	1 & 2	11	6	Thin Layer Chromatography: Theory and principles, Paper Chromatography- technique, sample preparation, types of paper, solvents	6	Thin Layer Chromatography: Theory and principles, Paper Chromatography- technique, sample preparation, types of paper, solvents	Nil	--
7	Feb. 2023	3 &4	11	6	**pH meter:** pH meter, Glass pH electrode, combination of pH electrode-Complete Cell, Standard Buffer ,pH measurement, How does it works? Applications.	6	**pH meter:** pH meter, Glass pH electrode, combination of pH electrode-Complete Cell, Standard Buffer, pH measurement, How does it works? Applications.	---	----

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TEACHING AND EVALUATION PLAN

Name of the teacher: Dr. Bhosale R.R	**Year:** 2022-2023	**Semester:** V
Subject: Environmental Chemistry	**Paper:** CH-511A	**Class:** T. Y. B. Sc.

Part I : Teaching Plan						Part II : Evaluation of Plan			
1	2	3	4	5	6	7	8	9	10
Sr. No.	Month	Week	No. of working days	No. of periods available	Topics to be taught	No. of periods engaged	Topics taught	Deviation in periods	Remarks
1	Sept. 2022	3 & 4	9	6	**Concepts and Scope:** Environmental Pollution and Classification, their Segments, Biogeochemical cycles of C, N, P, S and O system.	6	**Concepts and Scope:** Environmental Pollution and Classification, their Segments, Biogeochemical cycles of C, N, P, S and O system.	Nil	--
2	Oct. 2022	1& 2	12	6	Hydrosphere and Water Pollution Hydrological Cycle : Classification of water pollutants,	6	Hydrosphere and Water Pollution Hydrological Cycle : Classification of water pollutants, water quality parameters.	1	Extra lecture was conducted on sunday
3	Oct. 2022	3 & 4	11	6	Eutrophication, Sampling and monitoring water quality parameters: pH, D.O, COD, TOC, TH, free chlorine.	6	Eutrophication, Sampling and monitoring water quality parameters: pH, D.O, COD, TOC, TH, free chlorine.	Nil	----
4	Nov. 2022	1 &2	11	6	**Analytical Techniques in water Analysis:** domestic water quality parameters, Cr, Cu, Fe, Pb, Mn, Hg (Exclude polarographic and AAS methods), COD, BOD, TOC,	6	**Analytical Techniques in water Analysis:** domestic water quality parameters, Cr, Cu, Fe, Pb, Mn, Hg (Exclude polarographic and AAS methods), COD, BOD, TOC,	1	Extra lecture was conducted
5	Nov. 2022	3 & 4	12	6	phenols, pesticides, surfactants, tannis and lignins, E. Coli,	6	phenols, pesticides, surfactants, tannis and lignins, E. Coli,	Nil	---

Semester V **Paper: CH-511A** **Year : 2022-2023**

Part I : Teaching Plan						Part II : Evaluation of Plan			
1	2	3	4	5	6	7	8	9	10
Sr. No.	Month	Week	No. of working days	No. of periods available	Topics to be taught	No. of periods engaged	Topics taught	Deviation in periods	Remarks
6	Dec. 2022	1 & 2	11	6	**Water pollution and treatment methods:** Water pollutants, Eutrophication, Waste water industrial waste water treatment,	6	**Water pollution and treatment methods:** Water pollutants, Eutrophication, Waste water industrial waste water treatment.	Nil	--
7	Dec. 2022	3 &4	11	6	drinking water supplies, Trace elements in water,	6	drinking water supplies, Trace elements in water,	4	Extra lecture was conducted

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TEACHING AND EVALUATION PLAN

Name of the teacher: Dr. Bhosale R.R	**Year:** 2022-2023	**Semester:** VI
Subject: Physical Chemistry Chemistry-III	**Paper:** CH-602	**Class:** T. Y. B. Sc.

Part I : Teaching Plan						Part II : Evaluation of Plan			
1	2	3	4	5	6	7	8	9	10
Sr. No.	Month	Week	No. of working days	No. of periods available	Topics to be taught	No. of periods engaged	Topics taught	Deviation in periods	Remarks
1	Feb. 2023	3 & 4	9	6	**Colligative properties of dilute solutions:** Solution, electrolytes and nonelectrolytes, Colligative properties.	6	**Colligative properties of dilute solutions:** Solution, electrolytes and nonelectrolytes, Colligative properties.	Nil	--
2	March 2023	1& 2	12	6	Relation between Vant Hoff's factor and degree of dissociation, **Kinetics of Reactions in the Solid State:** Factors affecting, Rate Laws,	6	Relation between Vant Hoff's factor and degree of dissociation, **Kinetics of Reactions in the Solid State:** Factors affecting, Rate Laws,	1	Extra lecture was conducted on sunday
3	March 2023	3 & 4	11	6	Applying Rate Laws, Results of Some Kinetic Studies, The Deaquation-Anation of [Co (NH3)5H2O]Cl3,	6	Applying Rate Laws, Results of Some Kinetic Studies, The Deaquation-Anation of [Co (NH3)5H2O]Cl3,	Nil	----
4	March 2023	5	05	3	**Electronic structure and macroscopic properties:** electronic structure of solids, conductors and insulators,	4	**Electronic structure and macroscopic properties:** electronic structure of solids, conductors and insulators,	1	Extra lecture was conducted
5	April 2023	1& 2	07	5	Ionic crystals, semiconductors, cohesive energy in metals. **Polymres:**	5	Ionic crystals, semiconductors, cohesive energy in metals. **Polymres:**	Nil	---

Semester VI **Paper: CH-602** **Year : 2022-2023**

Part I : Teaching Plan						Part II : Evaluation of Plan			
1	2	3	4	5	6	7	8	9	10
Sr. No.	Month	Week	No. of working days	No. of periods available	Topics to be taught	No. of periods engaged	Topics taught	Deviation in periods	Remarks
6	April 2023	3&4	11	6	Molecular weights of polymers: Molecular weight & degree of polymerisation.	6	Molecular weights of polymers: Molecular weight & degree of polymerisation. Practical significance of polymer molecular weights.	nil	--
7	April 2023	5	6	3	Practical significance of polymer molecular weights, numerical problems.	3	Different methods used for dtermination of molecular weights. numerical problems.	nil	

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Signature of Teacher

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Science Faculty
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College,Indapur, Dist.Pune

Signature of the Principal
PRINCIPAL
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COMMERCE COLLEGE
INDAPUR-413106 DIST-PUNE

Teacher name: Sachin D.Kharat **Year : 2022-2023** **Class: F.Y.B.Sc** **Semester II** **Paper: CH-201 : Inorganic Chemistry**

Part I : Teaching Plan						Part II : Evaluation of Plan			
1	2	3	4	5	6	7	8	9	10
Sr. No.	Month	Week	No. of working days	No. of periods available	Topics to be taught	No. of periods engaged	Topics taught	Deviation in periods	Remarks
1	March 2023	4 & 5	9	5	Atomic Structure	5	Atomic Structure	Nil	--
2	April 2023	1,2 & 3rd	10	4	Atomic Structure	6	Atomic Structure	2	Extra lecture was conducted
3	April 2023	4 & 5	11	5	Periodic table and Periodicity of Elements	5	Periodic table and Periodicity of Elements	Nil	--
4	May	1 &2	10	5	Periodic table and Periodicity of Elements & Chemical Bonding	5	Periodic table and Periodicity of Elements & Chemical Bonding	Nil	--
5	May	2&3	12	6	Chemical Bonding	10	Chemical Bonding	4	Extra lecture was conducted

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Arts, Science and Commerce College, Indapur, Dist. Pune

TEACHING AND EVALUATION PLAN

Name of the teacher: Sachin D. Kharat	Year: 2022-2023	Semester: II
Subject: Organic Chemistry -III	Paper: CH-608	Class: T.Y. B.Sc

Part I : Teaching Plan						Part II : Evaluation of Plan			
1	2	3	4	5	6	7	8	9	10
Sr. No.	Month	Week	No. of working days	No. of periods available	Topics to be taught	No. of periods engaged	Topics taught	Deviation in periods	Remarks
1	Feb 2023	3 & 4	8	4	Retrosynthetic Analysis and Applications	4	Retrosynthetic Analysis and Applications	Nil	--
2	Feb 2023	5th	2	2	Retrosynthetic Analysis and Applications,	4	Retrosynthetic Analysis and Applications	2	Extra lectures conducted
3	March 2023	1 & 2	9	3	Organic Reaction Mechanism and Synthetic Applications	3	Organic Reaction Mechanism and Synthetic Applications	Nil	
4	March 2023	3,4 & 5th	13	8	Organic Reaction Mechanism and Synthetic Applications, Reagents in Organic Synthesis	10	Organic Reaction Mechanism and Synthetic Applications, Reagents in Organic Synthesis	2	Extra lectures conducted
5	April 2023	1,2 & 3rd	10	5	Reagents in Organic Synthesis	5	Reagents in Organic Synthesis	Nil	--
6	April 2023	4 & 5	11	6	Natural Products	6	Natural Products	Nil	--

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Indapur Taluka Shikshan Prasarak Mandal's
Arts, Science and Commerce College, Indapur, Dist. Pune
TEACHING AND EVALUATION PLAN

Department of chemistry CH-507

Name of The Teacher : Khorat Sachin Dattu Year: 2022-23 Semester: – I

Class: T.Y. B.Sc Division: Subject: Organic chemistry – I Paper: – I

Part I : Teaching Plan						Part II : Evaluation of Plan			
1 Sr. No.	2 Month	3 Week	4 No. of Workeng Days	5 No. of Periods available	6 Topics to be taught	7 No. of periods engaged	8 Topics taught	9 Deviation in periods	10 Remarks
	Sep	4	03	01	Introduction	1	Organic chemistry Introduction	–	
	Sept	5	05	03	polynuclear & Hetero nuclear aromatic comp:	03	polynuclear & Hetero nuclear aromatic comp	—	
	Oct	1	05	03	Naphthalene reactions	03	Naphthalene reactions	—	
	Oct-	2	06	03	Anthracene furan, pyrrol reactions	02	Anthracene furan, pyrrole reactions	1	
	Oct	3	06	03	Chapt-2 Active methylene compound.	03	Introduction, prepn of EAA & DEM & reaction	–	
	Oct	4	03	01	reactions of DEM	01	Reactions of EAA & DEM	—	
	NOV	1	05	02	Chapt-3 Rearrangement reactions introduction	02	Chap-3 - Rearrangement reactions introduction	–	

Part I : Teaching Plan						Part II : Evaluation of Plan			
1 Sr. No.	2 Month	3 Week	4 No. of Working Days	5 No. of Periods available	6 Topics to be taught	7 No. of periods engaged	8 Topics taught	9 Deviation in periods	10 Remarks
	NOV	2	05	02	Beckmann, B.V. Rearrangement	02	Beckmann, B.V. reaction	—	
	NOV	3	06	03	Curtius, Lossen, Schmidt pinacol reaction	03	Curtius, Lossen, Schmidt pinacol, cope, McLafferty	—	
	NOV	4	06	03	Example of rearrangement reactions	03	Example of rearrangement reaction	—	
	NOV	5	02	02	Chap-4- Elimination reactions introduction	02	Elimination reaction introduction	—	
	DEC	4	6	4	E1, E2, Reaction	4	E1, E2 reactions	—	

N. B.

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