

Percentage of Revision of B.Sc., Chemistry Syllabus under Regulation 2021

DEPARTMENT OF CHEMISTRY

S.No	Course Code	Course Title	Change Details	% of Changes	Content Deleted	Content Updated	Reason for Change
							Subject Expert / Course Teacher / Alumni Opinion
1	21UCY101	Core paper- I Inorganic and Organic Chemistry	Unit 1	30%		Division of elements into s, p, d and f block elements. Comparison between ionic, covalent and coordinate bonding.	Subject expert
			Unit 2		Ozone: Preparation, properties, structure and uses. Ozone depletion: Causes and effects. Sulphur: Peracids of Sulphur and Sodium	Theoretical Principles in Qualitative Analysis: Basic principles involved in analysis of anions, solubility products, common ion effect. Principles	

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					thiosulphate - Preparation, properties, structure and uses.	involved in separation of cations into groups and choice of group reagents. Interfering anions (fluoride, borate, oxalate and phosphate) and need to remove them after Group II. C ₆ H ₆ molecules.
			Unit 3			Alkanes: Structure- source-Methods of preparation and properties.
			Unit 4			Nomenclature
			Unit 5		-	Elimination versus substitution- Benzyne mechanism
2	21UCY202	Core Paper- II Organic and Physical Chemistry	Unit 1	30%		Hydroxy acids: Tartaric acid, citric acid - Preparation and properties.
			Unit 2			Reimer-

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						<p>Tiemann, Gattermann, Volumetric analysis: Principle, Preparation of standard solutions, primary and secondary standard substances, Types of titration and Principles of different types of titrations.</p>
			Unit 3			<p>Applications to particle in one- dimensional box, Orbit and Orbitals,</p>
			Unit 4			<p>Comparison of isothermal and adiabatic expansions.</p>
			Unit 5			<p>Hess's law.</p>

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3	21UCY203	Core Practical-I	Unit	30%	-	Inorganic Preparations: i) Preparation of Tetrammine copper (II) complex. ii) Preparation of Hexammine cobalt (II) Chloride. iii) Preparation of Potassium trioxalato chromate (III).	
4.	21UCY304	Core - III : Inorganic and Physical Chemistry	Unit-3	5 %		Concept of fugacity and concept of activity. Thermodynamic relations for chemical affinity.	Course Teacher
5	21UCY3N11	Non Major Elective - I : Introduction to Nanotechnology	Unit 1 Unit 2 Unit 3 Unit 4 Unit 5	100 %		New Paper (5 Units)	Course Teacher
	21UCY3N12	Non Major Elective - I:	Unit 1 Unit 2	0%	-	-	-

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		Chemistry of Consumer Products	Unit 3				
			Unit 4				
			Unit 5				
6	21UCY405	Core - IV : Inorganic, Organic and Physical Chemistry	Unit - 2	10%	Duff's reaction	Preparation of phenol from cumene and reactions of phenol in Schotten - Bauman reaction. Preparation of Nitrobenzene	Course Teacher
	Unit - 3		Optical isomerism : Types				
7	21UCY406	Core Practical II : Volumetric and Organic Qualitative Analysis	-	-	-	-	-
8	21UCY4N21	Non Major Elective - II :	Unit 1 Unit 2			New Paper (5 Units)	

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		Textile Chemistry	Unit 3 Unit 4 Unit 5	100 %			
	21UCY4N22	Non Major Elective - II : Food Science and Technology	Unit 1 Unit 2 Unit 3 Unit 4 Unit 5	0%	-	-	-
9	21UCY507	Core - V : Coordination and Bioinorganic Chemistry	Unit-I	3%		Factors affecting the stability of chelate complexes	Course Teacher
10	21UCY508	Core- VI : Organic Chemistry-I	Unit I Unit III	5 %	Saccharin	Lossen Rearrangement Introduction to Polysaccharides: Starch and cellulose (Structural determination is not required)	Subject Expert
11	21UCY509	Core VII : Electro Chemistry	Unit 1 Unit 2	20%		Ionic mobility, Discharge of ions on electrolysis determination of solubility and solubility product of	University nominee

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						sparingly soluble salts	
			Unit 3			pH scale, Common ion effect	
			Unit 4			Determination of Activity Coefficients of Electrolytes	
			Unit 5			Hydrogen - Oxygen fuel cell in manned space flights.	
12	21UCY510	Core - VIII : Dye Chemistry	Unit - 1	20%	Various regions.	-	Subject Expert
			Unit - 2		Diazo coupling and Classification of azo dyes as monoazo and bisazo dyes	Principles governing azo-coupling	

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					<p>Phthalein and Xanthene dyes:</p> <p>Phenolphthal ein and Rhodamine B.</p> <p>Indigoid dyes:</p> <p>Indigotin - Synthesis and application to fibre.</p> <p>Indigosol - O synthesis</p>	<p>Phthalein dyes:</p> <p>Phenolphthalein - Xanthene dyes:</p> <p>Eosin and Rhodamine B.</p> <p>Synthesis and uses of Indigoid dyes: Indigotin and Indigosol O.</p>	
			Unit - 3				
				Unit - 4			
					Unit - 5		
						<p>Ionic and non-ionic Pigments - Phthalocyanines</p> <p>Structure of textile fibres: nylon, polyester and polyacrylamide.</p> <p>Preparation, properties and Uses of Nylon 6,</p>	

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					Nylon (6,6), Polyester and poly acryl amide. Dye - fibre Interactions - Ionic forces, Hydrogen bonds, Vander Waals forces, Covalent bonds.	
13	2IUCY5E11	Core Elective - I : Analytical Chemistry I	Unit-1	20%	Sampling - Significance of sampling, types of sample, sampling methods for solids, liquid and gases.	Course Teacher
		Unit-2	Discussion of various components with block diagram, Characteristics of TGA curve			
		Unit-3	Estimation of Glucose			
		Unit-5	Gas liquid chromatography:			

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						types, principle, theory and applications of gas liquid chromatography	
14	21UCY5E12	Core Elective - I : Pharmaceutical Chemistry	Unit 1 Unit 2 Unit 3 Unit 4 Unit 5	100%		New Paper (5 Units)	
15	21UCY5E13	Core Elective - I : Leather Chemistry	Unit 1 Unit 2 Unit 3 Unit 4 Unit 5	100%		New Paper (5 Units)	
16	21UCY5S12	Cyber Security - Ethical Hacking	SBE	-	-	-	No correction
17	21UCY5AL1	Advanced Learner Course - I: Environmental Chemistry (Optional) Self Study	Unit 1 Unit 2 Unit 3 Unit 4 Unit 5	100%		New Paper (5 Units)	-
18	21UCY611	Core - IX : Physical Methods and Chemical Structure	Unit III	1%		Retro-Diels Alder Reaction	Course Teacher

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19	21UCY612	Core - X : Organic Chemistry - II	Unit - 2	15%	Classification, Glycine and Alanine:	Definition - chemical and physical properties of amino acids. Tertiary and quaternary structures of proteins	Subject Expert	
			Unit - 3		Carbohydrates present in nucleic acids. Lipids: Classification according to Bloor. Sources, extraction, properties and analysis of oils and fats.	Definition, chemical composition Lipids: Classification - oils and fats - structure, chemical reactions, saponification value and iodine value Structure and functions of RNA.		Subject Expert
			Unit - 4		Occurrence of vitamins	Introduction - Importance of vitamins		
			Unit - 5		Antiseptics: Definition, structure and uses of	-		

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					chloramine-T and Iodoform.		
20	21UCY613	Core - XI :Chemical Kinetics and Quantum Mechanics	-	-	-	-	-
21	21UCY614	Core - XII : Polymer Chemistry	Unit 1	20%	-	Primary And Secondary Bond Forces In Polymers	Course Teacher
			Unit 2			Copolymers - Types, Importance of Copolymers	
			Unit 3			Polymer Additives - Fillers, Plasticizers, antioxidants, thermal stabilizers, fire retardants and colourants	
			Unit 4			Application of FTIR, UV-visible, NMR, and Mass Spectroscopy for identification of	

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						polymers.	
			Unit 5			Polymethylmethacrylate, Polyethylene terephthalate	
			Unit-1			Characteristic absorption bands of various functional groups	
22	21UCY6E21	Core Elective - II : Analytical Paper II	Unit-3	25%	Theoretical Principles in Qualitative Analysis and volumetric analysis moved to I st and II nd Semester	pH of strong and weak acid solutions. Buffer solutions. Henderson equations. Preparation of acidic and basic buffers	Course Teacher
			Unit-4			Theory of complexometric titration, indicators for EDTA titration	
			Unit 5			Analytical method in chemistry (new unit)	
23	21UCY6E22	Core Elective - II : Pharmaceutical	Unit 1				
			Unit 2	100 %			
			Unit 3				
						New Paper (5 Units)	

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		Chemistry II	Unit 4				
			Unit 5				
24	21UCY6AL2	Core Elective - II : Agricultural chemistry and Analytical techniques for agrochemicals	Unit-1 Unit-2 Unit-3 Unit-4 Unit-5	100%		New Paper (5 Units)	-
25	21UCY615	Core Lab - III : Gravimetric Analysis and Physical Chemistry Experiments		5%	In Gravimetric estimations: Lead as lead sulphate In Kinetics: Persulphate oxidation	In kinetics: Hydrolysis of ethyl acetate using NaOH	Course Teacher
26	21UCY6AL2	Advanced Learner Course - II: Applications of Spectroscopy (Optional) Self Study	Unit-1 Unit-2 Unit-3 Unit-4 Unit-5	100%		New Paper (5 Units)	-
27	21UCY6S21	Skill Based Elective - II : Green Chemistry	Unit-1	20%		Future trends in Green Chemistry - Green nano-synthesis and Green polymer chemistry	Course Teacher

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			Unit-5		Use of Bio-catalysis, Transition metal catalysts, Supported metal catalysts for green synthesis. Solvent less synthesis.	Green Chemistry Using Bio Catalytic Reactions - Introduction - Fermentation and Bio transformations - Production of Bulk and fine chemicals by microbial fermentation	
28	21UCY6S22	Skill Based Elective - II :Cleanenergy	Unit-1 Unit-2 Unit-3 Unit-4 Unit-5	100%		New Paper (5 Units)	
29	21UPS3A3/ 21UBY3A/ 21UZY3A4	Allied Chemistry Paper - I Inorganic, organic and physical chemistry	Unit-1 Unit-2 Unit-3 Unit-5	20%		VSEPR Theory - postulates, limitations and prediction of shapes of molecules. reverse osmosis, electro dialysis Mechanism of SN1 and SN2 reactions Transport number	Course Teacher

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30	21UPS4A4/ 21UBY4A/ 21UZY4A5	Allied Chemistry Paper - II Inorganic, organic and physical chemistry	Unit-1	20%		Determination of calorific value of solid fuel using Bomb calorimeter	Course Teacher
			Unit-2			Polyester	
			Unit-3			Components of DNA and RNA ((Introduction to purines, and pyrimidines only)	
			Unit-5			Catalytic poisoning.	
31	21UPS 4A5/21UBY 4A6/21UZY 4A6	Allied Chemistry Practical	-	-	-	-	-

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