

Curriculum transaction and evaluation plan
Govt. Degree College Pampore
Department of chemistry

Course: Chemistry (Core)
Code: CH220C

Semester: 2nd credits: 04

Curriculum			Teaching Paedagogy	Evaluation Procedure	Organization of co-curricular activities	Month
Unit/ Credit	Topic	No. of Lectures				
1. P-Block Elements Credits= 1	Boron family: Boranes; classification, properties, Structure and bonding with special reference to diborane. Empirical rules of bonding in higher boranes.	04	Conventional Lecture method followed by group- discussion, assignments, ICT based methods like use of molecular 3D models, audio-visual lectures and power point presentations with animations. (To be adapted throughout the unit in all topics)	Oral examinations, presentations, assignments, problem solving abilities, regular class tests (both objective and subjective), open book examination.	Organising Lectures, seminars in chemistry to motivate students towards chemistry	February-March
	Carbon family: Silicates: Structure, bonding and classification	03				
	Nitrogen family: Allotropic forms of phosphorus. Structure and bonding of oxides and oxoacids of nitrogen and phosphorus	05				
		04				

	<p>Oxygen family: Structure and bonding of fluorides and oxyacids of Sulphur. Hydrogen peroxide: Preparation, properties and uses</p> <p>Halogens family: Structure and bonding of hydrogen halides, and oxoacids of halogens. Structure and bonding of Interhalogens, polyhalides and pseudohalogens</p> <p>Noble gases: Fluorides, oxides and oxyfluorides of xenon: Structure and bonding.</p>	<p>04</p> <p>04</p>				
	<p>Low-reactivity of alkanes-chlorination and bromination. The Reactivity-Selectivity-principle.</p> <p>Structure of alkenes, Preparation of alkenes</p>	<p>04</p>	<p>Conventional Lecture method followed by group- discussion, assignments, ICT based methods like use of chemsketch to learn drawing and converting 2D in to 3D</p>			

Unit II Credits 01 Chemistry of Saturated and Unsaturated Compounds	from alcohols and alkyl halides through elimination reaction	03	structures, molecular 3D models, audio-visual lectures and power point presentations with animations.	Oral examinations, presentations, assignments, problem solving abilities, regular class tests (both objective and subjective), open book examination	Organising Lectures, seminars in chemistry to motivate students towards chemistry	March-April
	Hoffmann and satyzev's rule, mechanistic and stereochemical implications.	03	(To be adapted throughout the unit in all topics)			
	Mechanistic details including regioselectivity and stereochemical implications of halogenation, hydrohalogenation, hydroboration, epoxidation, hydroxylation and ozonolysis.	06				
	1, 2-addition of isolated diene. 1, 2 and 1, 4-addition reactions of conjugated dienes. Thermodynamic vs kinetic control.	04				
	Alkynes: Structure and acidic character of alkynes. Mechanisms of addition of halogens, hydrogen, halides, hydration, hydroboration and catalytic	04				

	and metal-ammonia reductions of alkynes.					
Unit III Credits 01 Organic Reaction Mechanism	Aliphatic Substitution and Elimination reactions: Mechanistic details of SN1 and SN2, E1 and E2 Reactions.	06	Conventional Lecture method followed by group- discussion, assignments, ICT based methods like use of chemsketch to learn drawing and converting 2D in to 3D structures, molecular 3D models, audio-visual lectures and power point presentations with animations. (To be adapted throughout the unit in all topics)	Oral examinations, presentations, assignments, problem solving abilities, regular class tests (both objective and subjective), open book examination	Organising Lectures, seminars in chemistry to motivate students towards chemistry	March-April
	Effects of structure of alkyl halides, nature of nucleophiles, leaving groups, solvent and stereochemical implications of SN reactions.	04				
	Aromatic Electrophilic Substitution reactions: General mechanism of aromatic electrophilic Substitution-reactions. (Halogenation, Nitration, Sulfonation, Friedel-crafts alkylation and acylation reactions of Benzene)	04				
	. The second substitution-Effect of substituents on reactivity and orientation.	06				

	<p>Mechanisms of Gattermann, Houben-Houesch, Veils-Meir Haack and Riemer-Tieman reactions.</p> <p>Aromatic Nucleophilic Substitution Reactions (Aryl halides):S_NAr and Benzyne mechanism</p>	04				
<p>Unit IV Credits 1 Chemical Kinetics</p>	<p>Order of reaction, derivation of integrated rate equations for second (two reactants) and third order reactions.</p>	07	<p>Conventional Lecture method followed by group- discussion, assignments, ICT based methods audio-visual lectures and power point presentations with animations.</p> <p>(To be adapted throughout the unit in all topics)</p>	<p>Oral examinations, presentations, assignments, problem solving abilities, regular class tests (both objective and subjective), open book examination</p>	<p>Organising Lectures, seminars in chemistry to motivate students towards chemistry</p>	<p>April-May</p>
	<p>Determination of order of reaction by differential rate, integration, half-life period and isolation methods.</p>	04				
	<p>Temperature dependence of reaction rates: Arrhenius equation, concept of activation energy.</p> <p>Theories of chemical kinetics: Simple collision theory based on hard sphere model for atomic reactions, limitations.</p>	07				

	Steady state and equilibrium approximation Kinetics of thermal and photochemical reactions: Decomposition of hydrogen iodide and hydrogen bromine.	06				
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