

I – Academic Planner

A. Teaching Plan (Year: 2019-2020 Semester: Even)

Teacher's Name: RAM SUNIL KUMAR LALJI Department: Chemistry

Sl. No.	UPC	Paper Name	Core/AECC/GE/SEC	Topic/Unit	Start Date	End Date
	4217 7926	Organometallics, Bioinorganic Chemistry, Polynuclear Hydrocarbons and UV, IR Spectroscopy	Core	1. Polynuclear and heteronuclear aromatic compounds 2. UV-Visible and infrared 3. Active methylene compounds Preparation	09.01. 2020 02.03. 2020 23.04. 2020	27.02. 2020 16.04. 2020 07.05. 2020
	3217 5912	Molecules of Life	GE	1. Carbohydrates 2. Amino Acids, Peptides and Proteins 3. Nucleic Acids Components of Nucleic acids	06.01. 2020 25.02. 2020	24.02. 2020 05.05. 2020
		Organic Chemistry	Core	1. Aromatic HC Structure and aromatic character of benzene 2. Aldehydes and ketones, Phenols, ethers	06.01. 2020	11.05. 2020
	3217 1401	Organic Chemistry III	Core Lab	1. Detection of extra elements. 2. Functional group test for nitro, amine and amide groups. 3. Qualitative analysis of unknown organic compounds containing simple functional groups (alcohols, carboxylic acids, phenols and carbonyl compounds)	07.01. 2020	04.05. 2020
	3217 1401	Organic Chemistry III	Core Lab	1. Detection of extra elements. 2. Functional group test for nitro, amine and amide groups.	08.01. 2020	05.05. 2020

				3. Qualitative analysis of unknown organic compounds containing simple functional groups (alcohols, carboxylic acids, phenols and carbonyl compounds)		
4217 1205	Chemical energetics, equilibria & functional organic chemistry	DSC Lab		1. Physical Chemistry 2. Organic Chemistry	03.01. 2020	30.04. 2020

B. Outstation Field visits for students

Project Name / Paper Name			
Destination		Travel Mode	
Departure Month		Return	
Faculty-in-Charge		Number of Students going	

C. Internal Assessment: House Exam (Test/Presentation etc.) & Assignment

Course Code	Course Name	Unique Paper Code	Topic Name	Day and Date	Date/s of Exhibiting the Assessment Sheet to students, Discussing the marks, Returning/Retaining
557	(CBCS) B.Sc.(Hons.) Chemistry	32171401	Detection of extra elements. Functional group test for nitro, amine and amide groups.		
557	(CBCS) B.Sc.(Hons.) Chemistry	32171401	Detection of extra elements. Functional group test for nitro, amine and amide groups.		

583	(Cbcs) B.Sc. Life Science	42177926	Polynuclear and heteronuclear aromatic compounds UV-Visible and infrared Active methylene compounds Preparation		
585	(Cbcs) B.Sc. Analytical Chemistry	42171205	Aromatic HC Structure and aromatic character of benzene Aldehydes and ketones, Phenols, ethers		
582	(Cbcs) B.Sc. Physical Science	32175912	Physical Chemistry Organic Chemistry		
	GE	32175912	Carbohydrates Amino Acids, Peptides and Proteins Nucleic Acids Components of Nucleic acids		

D. Organization of Department/College Society Meetings by Staff Advisor/Convener

Department/Society	Meeting Date	Purpose

I – Academic Planner

A. Teaching Plan (Year: 2020-2021 Semester: Even)

Teacher's Name: RAM SUNIL KUMAR LALJI Department: Chemistry

Sl . No.	UP C	Paper Name	Core/A ECC/G E/SEC	Topic/Unit	Start Date	End Date
	4217 7926	Organometallics, Bioinorganic Chemistry, Polynuclear Hydrocarbons and UV, IR Spectroscopy	Core	1. compounds UV-Visible and IR 2. Polynuclear and heteronuclear aromatic 3. Video Presentation 4. Active methylene compounds Preparation Test on 08.04.2021 Internal Assessment 22.05.2021	07.01.2021 11.03.2021 25.04.2021 29.04.2021	03.03.2021 16.04.2021 25.04.2021 15.05.2021
	3217 5912	Molecules of Life	GE	1. Carbohydrates 2. Amino Acids, Peptides and Proteins 3. Nucleic Acids Components of Nucleic acids Presentation 02.05.2021 Internal Assessment 25.05.2021	12.01.2021 01.03.2021 10.04.2021	23.02.2021 03.04.2021 15.05.2021
		Organic Chemistry	Core	1. Aromatic HC Structure and aromatic character of benzene 2. Aldehydes and ketones, Phenols, ethers Presentation 01.08.2021 Test on 18.07.2021	12.04.2021 24.05.2021	11.05.2021 12.07.2021
	3217 1401	Organic Chemistry III	Core Lab	1. Detection of extra elements. 2. Functional group test for nitro, amine and amide groups. 3. Qualitative analysis of unknown organic compounds containing simple functional groups (alcohols, carboxylic acids, phenols and carbonyl compounds)	06.01.2021	31.03.2021

				Presentation Assignment work on 28.05.2021		
3217 1401	Organic Chemistry III	Core Lab		1. Detection of extra elements. 2. Functional group test for nitro, amine and amide groups. 3. Qualitative analysis of unknown organic compounds containing simple functional groups (alcohols, carboxylic acids, phenols and carbonyl compounds)	08.01.2020	05.05.2020
4217 1205	Chemical energetics, equilibria & functional organic chemistry	DSC Lab		1. Physical Chemistry 2. Organic Chemistry Video Presentation 07.08.2021 Final Assignment 09.08.2021	09.04.2021	09.08.2021

B. Outstation Field visits for students

Project Name / Paper Name			
Destination		Travel Mode	
Departure Month		Return	
Faculty-in-Charge		Number of Students going	

C. Internal Assessment: House Exam (Test/Presentation etc.) & Assignment

Course Code	Course Name	Unique Paper Code	Topic Name	Day and Date	Date/s of Exhibiting the Assessment Sheet to students, Discussing the marks, Returning/Retaining
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I – Academic Planner

Teaching Plan (Year: 2020-2021 Semester: Odd)

Teacher's Name: Ram Sunil Kumar L. , Department: Chemistry

S. No.	UPC	Paper Name	Core/AE CC/GE/S EC	Topic/Unit	Start Date	End Date
1.		CHEMISTRY- DSE Green Chemistry	DSE	<ol style="list-style-type: none">1. Introduction2. Green synthesis and 12 Green Principles3. Green Synthesis of the following compounds: adipic acid, catechol,4. DSIDA5. plastic (poly lactic acid) made from corn6. Ultrasound assisted reactions7. Environmentally safe marine antifoulant8. Cradle to Cradle Carpeting9. Proposed Test10. Surfactants for Carbon Dioxide11. Right-fit pigment12. Healthier Fats and oil by Green Chemistry13. Microwave assisted reactions in water: Hofmann Elimination, methyl benzoate to benzoic acid, oxidation of toluene and alcohols14. microwave assisted reactions in organic	10/8/2020 17/8/2020 24/8/2020 31/8/2020 7/9/2020 21/9/2020 28/9/2020 05/10/2020 12/10/2020 19/10/2020 26/10/2020 02/11/2020 09/11/2020 16/11/2010	

				solvents Diels-Alder reaction and Decarboxylation reaction	23/11/2020	
				15. Revision	30/11/2020	
				16. Proposed Test		
2.		CHEMISTRY-DSE Green Chemistry	DSE	CHEMISTRY PRACTICAL - DSE LAB: GREEN CHEMISTRY 60 Lectures		
				1. Introduction to Green Chemistry	17/08/2020	
				2. Limiting reagents		
				3. Extraction of D-limonene from orange peel using liquid CO ₂ prepared from dry ice.	24/08/2020 31/08/2020	
				4. Biodiesel	07.09.2020	
				5. Mechanochemical solvent free synthesis of azomethines	14.09.2020	
				6. Use of enzymes as catalysts Benzoin condensation using Thiamine Hydrochloride as a catalyst	21.09.2020	
				7. Photoreduction of benzophenone to benzopinacol in the presence of sunlight.	28.09.2020	
				8. Aluminium complex	05.10.2020	
				9. Solvent free, microwave assisted one pot synthesis of phthalocyanine complex of copper (II).	12.10.2020	
				10. Practical file and other assignments	19.10.2020	
				11. Meeting with Parents	26.10.2020	
				12. Safer starting materials Preparation and characterization of nano particles of gold using tea leaves.	2/11/2020	

				13. Avoiding waste Principle of atom economy. Use of molecular model kit to stimulate the reaction to investigate how the atom economy can illustrate Green Chemistry.	9.11.2020	
3a.		BSc Prog Life Sciences Sem III		<ol style="list-style-type: none"> 1. Classification, and general properties 2. Glucose and fructose (open chain and cyclic structure) 3. Determination of configuration of monosaccharide 4. Absolute configuration of glucose and fructose 5. Mutarotation 6. Ascending and descending in monosaccharides 7. Structure of disaccharides (sucrose, cellobiose, maltose, lactose) 8. Polysaccharides (starch and cellulose) excluding their structure elucidation. 	13/08/2020	01/10/2020
3b.		BSc Prog Life Sciences Sem III		<ol style="list-style-type: none"> 1. Zwitterion, isoelectric point and electrophoresis 2. Preparation of amino acids: <ol style="list-style-type: none"> a. Strecker synthesis b. Gabriel's phthalimide synthesis 3. Reactions of amino acids: <ol style="list-style-type: none"> a. ester of -COOH group b. acetylation of -NH₂ group c. complexation with Cu²⁺ ions d. ninhydrin test. 4. Overview of Primary, Secondary, Tertiary and Quaternary Structure of proteins 5. Determination of primary structure of peptides by degradation Edmann degradation (N- terminal) and C- terminal (thiohydantoin 6. With carboxypeptidase enzyme). 7. Synthesis of simple peptides (upto dipeptides) by N-protection (t-butyloxycarbonyl and phthaloyl) 8. C- activating groups 9. Merrifield solid phase synthesis. 	8/10/2020	19/10/2010
3c.		BSc Prog Life Sciences Sem III		Carboxylic Acids derivatives , Amines and derivatives	05/11/2010	26/11/2010

4.	32171302	Organic Chemistry II: Oxygen Containing Functional Groups	Core	1. Organic Preparations: (a) Benzoylation of aniline (b) Acetylation of Aniline (c) Acetylation of Aniline (d) Hydrolysis of Ester (e) Hydrolysis of Amide (f) Partial reduction of <i>m</i> -dinitrobenzene (g) Semi carbazone Preparation (h) Preparation of <i>S</i> -Benzylthiuronium salt of water soluble carboxylic acid (i) Preparation of <i>S</i> -Benzylthiuronium salt of water insoluble carboxylic acid 2. Functional group tests for alcohols, phenols, carbonyl and carboxylic acid group	26.08.2020 02.09.2020 09.09.2020 23.09.2020 30.09.2020 07.10.2020 21.10.2020 28.10.2020 04.11.2020 11.11.2020	
5.		GE sem III		Practicals	11 th Sep 2020	28 th Nov 2020
6.	-	BSc Prog Physical Sciences Sem I	Core	Organic Chemistry	18 th Nov 2020	March 2020

B. FDP/Seminar/Workshops/Lectures to be attended and/or to be conducted by Teachers

Event Topic		FDP on ICT Tools			
Type / Nature (FDP/Webinar/Workshop etc.)		FDP			
Organizing In-charge		Dr Anshu			
Details regarding invited Resource Person		24.07.2020 to 30.07.2020			
Nature of Participation (e.g. Invited Speaker, Participant etc.)		Participant			
Date/s	24.07.2020 to 30.07.2020	Timing/s	9am -5 pm	Mode	Online

B. FDP/Seminar/Workshops/Lectures to be attended and/or to be conducted by Teachers

Event Topic		Non -Invasive Cancer Diagnosis and Prognosis”			
Type / Nature (FDP/Webinar/Workshop etc.)		Webinar			

Organizing In-charge		Dr Preeti Karwal			
Details regarding invited Resource Person		-			
Nature of Participation (e.g. Invited Speaker, Participant etc.)		Participant			
Date/s	17.10.2020	Timing/s	5-7 pm	Mode	Online

B. Internal Assessment: House Exam (Test/Presentation etc.) & Assignment*

Course Code	Course Name	Unique Paper Code	Topic Name	Day and Date	Date/s of Exhibiting the Assessment Sheet to students, Discussing the marks, Returning/Retaining
1.	BSc (H) Chem V Sem		Green Chemistry	Last week of Nov 2020	Next Week after the test
2.	BSc (P) LS		Carbohydrates, Proteins, Carboxylic acids, Amines	Last week of Nov 2020	Next Week after the test
3.	GE Sem III		Practicals	Last week of Nov 2020	Next Week after the test
4.	BSc (H) Chem III Sem		Practical	Last week of Nov 2020	Next Week after the test
5.	BSc (H) Chem V Sem Practical		Green Chemistry Practicals	Last week of Nov 2020	Next Week after the test
6.	BSc Prog Physical Sciences Sem I		Organic Chemistry	First week of March 2021	Next Week after the test

*Marks of the Internal Assessment to be submitted to the College 15 days before the last working day of every semester

C. Organization of Department/College Society Meetings by Staff Advisor/Convener

Department/Society	Meeting Date	Purpose

D. College Functions

College Function	Function Date	Role to be played

For Departments

A. Department activities for students – Election/Freshers/Welcome/Farewell/Department Seminars/Society functions

Event	Date	Timing	Venue	Event In-charge / Supervisor
Department Election				
Fresher's Welcome				
Farewell				
Department Society functions				
Department Seminars				
Any Other ()				

B. Outstation Field Visit for Students

Project Name / Paper Name			
Destination		Travel Mode	
Departure Month		Return	
Faculty-in-Charge		Number of Students going	

C. FDP/Seminar/Workshops/Lectures to be attended and/or to be conducted by Department

Event Topic					
Type / Nature (FDP/Webinar/Workshop etc.)					
Organizing In-charge					
Details regarding invited Resource Person					
Nature of Participation (e.g. Invited Speaker, Participant etc.)					
Date/s		Timing/s		Mode	

I – Academic Planner

Teaching Plan (Year: 2021-2022 Semester: Odd)

Teacher's Name: Ram Sunil Kumar L. , Department: Chemistry

S. No.	UPC	Paper Name	Core/AE CC/GE/S EC	Topic/Unit	Start Date	End Date
1.		CHEMISTRY- DSE Green Chemistry	DSE	Unit 3: Examples of Green Synthesis/ Reactions <ul style="list-style-type: none">• Green Synthesis of the following compounds: adipic acid, catechol, disodium iminodiacetate (alternative to Strecker synthesis).• Green Reagents: Non-phosgene Isocyanate Synthesis, Selective Methylation using dimethyl carbonate.• Microwave assisted solvent free synthesis of copper phthalocyanine• Microwave assisted reactions in water: Hofmann Elimination, methyl benzoate to benzoic acid and Decarboxylation reaction• Ultrasound assisted reactions: sonochemical Simmons-Smith Reaction (Ultrasonic alternative to Iodine) Test Unit 4: Real world case studies based on the Presidential green chemistry awards of EPA <ul style="list-style-type: none">• Surfactants for Carbon Dioxide – replacing smog producing and ozone depleting solvents with CO₂ for precision cleaning and dry cleaning of garments.	26/07/2021	20.09.2021
					27.09.2021	27.09.2021
					04.10.2021	15.11.2021

				<ul style="list-style-type: none"> • An efficient, green synthesis of a compostable and widely applicable plastic (polylactic acid) made from corn. • Healthier Fats and oils by Green Chemistry: Enzymatic Inter esterification for production of No Trans-Fats and Oils. • Development of Fully Recyclable Carpet: Cradle to Cradle Carpeting. 		
2.		CHEMISTRY-DSE Green Chemistry	DSE	<p>CHEMISTRY PRACTICAL - DSE LAB: GREEN</p> <ol style="list-style-type: none"> 1. Preparation and characterization of nanoparticles of gold using tea leaves/silver nanoparticles using plant extracts. Using renewable resources 2. Preparation of biodiesel from waste cooking oil and characterization (TLC, pH, Solubility, Combustion Test, Density, Viscosity, Gel Formation at Low Temperature and IR can be provided). Use of enzymes as catalysts 3. Benzoin condensation using Thiamine Hydrochloride as a catalyst instead of cyanide. Alternative green solvents 4. Extraction of D-limonene from orange peel using liquid CO₂ prepared from dry ice. 5. Mechanochemical solvent free, solid–solid synthesis of azomethine using p- toluidine and o-vanillin/vanillin (various other combinations of primary amine and aldehyde can also be tried). Alternative sources of energy 6. Solvent free, microwave assisted one pot synthesis of phthalocyanine complex of copper(II). 7. Photoreduction of benzophenone to benzopinacol in the presence of sunlight. Reducing waste 8. Designing and conducting an experiment by utilizing the products and by products 	26.07.2021	15.11.2021

				<p>obtained in above preparations which become waste otherwise if not used. This is done by critical thinking and literature survey.</p> <p>Some representative examples:</p> <ul style="list-style-type: none"> • Use of nanoparticles as catalyst for a reaction • Benzoin converted into Benzil and Benzil into Benzilic acid by a green method • Use of azomethine for complex formation • Rearrangement reaction from Benzopinacol to Benzopinacolone • Conversion of by-product of biodiesel to a useful product • Students should be taught to do spot tests for qualitative inorganic analysis for cations and anions, and qualitative organic analysis for preliminary test and functional group analysis. 		
3a.		BSc Prog Life Sciences Sem III		<ol style="list-style-type: none"> 1. Classification, and general properties 2. Glucose and fructose (open chain and cyclic structure) 3. Determination of configuration of monosaccharide 4. Absolute configuration of glucose and fructose 5. Mutarotation 6. Ascending and descending in monosaccharides 7. Structure of disaccharides (sucrose, cellobiose, maltose, lactose) 8. Polysaccharides (starch and cellulose) excluding their structure elucidation. 	19/08/2021	23/09/2021
3b.		BSc Prog Life Sciences Sem III		<ol style="list-style-type: none"> 1. Zwitterion, isoelectric point and electrophoresis 2. Preparation of amino acids: <ol style="list-style-type: none"> a. Strecker synthesis b. Gabriel's phthalimide synthesis 3. Reactions of amino acids: <ol style="list-style-type: none"> a. ester of -COOH group b. acetylation of -NH₂ group c. complexation with Cu²⁺ ions d. ninhydrin test. 4. Overview of Primary, Secondary, Tertiary and Quaternary Structure of proteins 	30/09/2021	07/12/2021

				<p>5. Determination of primary structure of peptides by degradation Edmann degradation (N- terminal) and C- terminal (thiohydantoin 6. With carboxypeptidase enzyme). 7. Synthesis of simple peptides (upto dipeptides) by N-protection (t-butyloxycarbonyl and phthaloyl) 8. C- activating groups 9. Merrifield solid phase synthesis. Carboxylic Acids derivatives , Amines and derivatives</p>		
4.	32171302	Organic Chemistry II: Oxygen Containing Functional Groups	Core	<p>1. Organic Preparations: (a) Benzoylation of aniline (b) Acetylation of Aniline (c) Acetylation of Aniline (d) Hydrolysis of Ester (e) Hydrolysis of Amide (f) Partial reduction of <i>m</i>-dinitrobenzene (g) Semi carbazone Preparation (h) Preparation of <i>S</i>-Benzylthiuronium salt of water soluble carboxylic acid (i) Preparation of <i>S</i>-Benzylthiuronium salt of water insoluble carboxylic acid 2. Functional group tests for alcohols, phenols, carbonyl and carboxylic acid group</p>	25.08.2021	07.12.2021
5.		GE sem III		Practicals		
6.	-	BSc Prog Physical Sciences Sem I	Core	Organic Chemistry		

B. FDP/Seminar/Workshops/Lectures to be attended and/or to be conducted by Teachers

Event Topic	
Type / Nature (FDP/Webinar/Workshop etc.)	
Organizing In-charge	
Details regarding invited Resource Person	
Nature of Participation (e.g. Invited Speaker, Participant etc.)	

Date/s	24.07.2020 to 30.07.2020	Timing/s	9am -5 pm	Mode	Online
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B. Internal Assessment: House Exam (Test/Presentation etc.) & Assignment*

Course Code	Course Name	Unique Paper Code	Topic Name	Day and Date	Date/s of Exhibiting the Assessment Sheet to students, Discussing the marks, Returning/Retaining
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*Marks of the Internal Assessment to be submitted to the College 15 days before the last working day of every semester

C. Organization of Department/College Society Meetings by Staff Advisor/Convener

Department/Society	Meeting Date	Purpose
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D. College Functions

College Function	Function Date	Role to be played
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For Departments

A. Department activities for students – Election/Freshers/Welcome/Farewell/Department Seminars/Society functions

Event	Date	Timing	Venue	Event In-charge / Supervisor
Department Election				
Fresher's Welcome				

Farewell				
Department Society functions				
Department Seminars				
Any Other ()				

B. Outstation Field Visit for Students

Project Name / Paper Name			
Destination		Travel Mode	
Departure Month		Return	
Faculty-in-Charge		Number of Students going	

C. FDP/Seminar/Workshops/Lectures to be attended and/or to be conducted by Department

Event Topic	
Type / Nature (FDP/Webinar/Workshop etc.)	
Organizing In-charge	
Details regarding invited Resource Person	
Nature of Participation (e.g. Invited Speaker, Participant etc.)	

Date/s		Timing/s		Mode	
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