### Hutatma Rajguru Mahavidyalaya, Rajgurunagar

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Ph. No.02135222099

Department of Chemistry

# Syllabus Completion Report (2023-24)

Teacher Name: Prof. Bhalekar D.G.

Class: M.Sc.-I

Sem.: I

Paper No.: CHE-501

Paper Name: Physical Chemistry-I

Total No. of Lectures Allotted: 60

Sr. No.	Chapter No.	Chapter Name	No. of Lectures	Month
			Taken	
1.	1.	Thermodynamics	12	Sept
2.	3.	Chemical Kinetics	16	Sept-Oct
3.	2.	Quantum Chemistry	14	Oct.
4.	4.	Molecular Thermodynamics	08	Nov.
			Total=50	

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### Syllabus Completion Report (2023-24)

Teacher Name: Prof. Pawar Rupali Yogesh

Class: M.Sc.-I

Sem.: I

Paper No.: CHEOD-502

Paper Name: Inoganic Chemistry-I

Total No. of Lectures Allotted: 30

Sr. No.	Chapter No.	Chapter Name	No. of Lectures	Month
			Taken	
1.	1.	Molecular Symmetry and Symmetry Groups	12	Sept
2.	3.	Representations of Groups	08	Sept-Oct
3.	2.	Symmetry Adapted Linear Combinations	04	Oct.
4.	4.	Application of Group theory to Infrared	04	Nov.
		Spectroscopy		
			<b>T</b> 1 <b>3</b> 0	
			Total=28	

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# Syllabus Completion Report (2023-24)

Teacher Name: Dr. Walunj Yogesh S.

Class: M.Sc.-I

Sem.: I

Paper No.: CHE-503 SEC-I

Paper Name: Organic Chemistry-I

Total No. of Lectures Allotted: 30

Sr. No.	Chapter No.	Chapter Name	No. of Lectures Taken	Month
1.	1.	Nature of Bonding in Organic Molecules	12	Sept
2.	2.	Stereochemistry	14	Oct
			Total=26	

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Department of Chemistry

### Syllabus Completion Report (2023-24)

Teacher Name: Prof. Pawar Rupali Yogesh

Class: M.Sc.-I

Sem.: I

Paper No.: CHE-503 SEC-II

Paper Name: Organic Chemistry-I

Total No. of Lectures Allotted: 30

Sr. No.	Chapter No.	Chapter Name	No. of Lectures Taken	Month
1.	1.	Aliphatic Nucleophilic Substitution reactions	06	Sept
2.	2.	Aromatic electrophilic and nucleophilic substitution reactions	08	Oct
3.	3.	Oxidation and Reduction Reaction	12	Nov
			Total=26	

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# Syllabus Completion Report (2023-24)

Teacher Name: Prof. Pawar Rupali Yogesh

Class: M.Sc.-I

Sem.: II

Paper No.: CHEOD-507

Paper Name: Organic Reactions and Reagents

Total No. of Lectures Allotted: 30

Sr. No.	Chapter No.	Chapter Name	No. of Lectures Taken	Month
1.	1.	Organic Reactions	12	Sept
2.	2.	Reagents	12	Oct- Nov
			Total=24	

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### Syllabus Completion Report (2023-24)

Teacher Name: Prof. Jasud J.S.

Class: M.Sc.-I

Sem.: I

Paper No.: CHE-508

Paper Name: Research Methodology

Total No. of Lectures Allotted: 60

Sr. No.	Chapter No.	Chapter Name	No. of Lectures Taken	Month
1.	1.	Introduction to Research methodology	04	Sept
2.	2.	Scope of Research and Ethics	04	Sept
3.	3.	Literature Survey and Search technique	06	Sept
4.	4.	Overview of the journal article	06	Oct
5.	5.	Presentation of Scientific findings, Scientific Report Writing	10	Oct
6.	6.	Data Analysis and interpretation	12	Oct
7.	7.	Presentation and Communication skills	04	Nov
8.	8.	Ethical Handling of Chemicals	06	Nov
			Total= 52	

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### Syllabus Completion Report (2023-24)

Teacher Name: Prof. Bhalekar D.G.

Class: M.Sc.-I

Sem.: II

Paper No.: CHEOD-551

Paper Name: Molecular Spectoscopy

Total No. of Lectures Allotted: 30

Sr. No.	Chapter No.	Chapter Name	No. of Lectures Taken	Month
1.	1.	Microwave Spectroscopy	04	Jan
2.	3.	Infra-Red Spectroscopy	04	Jan
3.	2.	Raman Spectroscopy	04	Feb
4.	4.	Electronic spectroscopy of molecules	08	Feb
5.	5.	Mossbauer Spectroscopy	04	Mar
			Total=24	

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# Syllabus Completion Report (2023-24)

Teacher Name: Prof. Pawar Rupali Yogesh

Class: M.Sc.-I

Sem.: II

Paper No.: CHE-552

Paper Name: Inoganic Chemistry-II (SEC-I: Coordination Chemistry)

Total No. of Lectures Allotted: 30

Sr. No.	Chapter No.	Chapter Name	No. of Lectures Taken	Month
1.	1.	Concept and Scope of Ligand Fields	04	Sept
2.	3.	Ligand Field Theory of Coordination Complexes	08	Sept-Oct
3.	2.	Electronic spectra of Transition Metal Complexes	06	Oct.
4.	4.	Magnetic Properties of Coordination Complexes	06	Nov.
			Total=24	

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Syllabus Completion Report (2023-24)

Teacher Name: Prof. Pawar Rupali Yogesh

Class: M.Sc.-I

Sem.: II

Paper No.: CHE-552

Paper Name: Inoganic Chemistry-II (SEC-II: Bioinorganic Chemistry)

Total No. of Lectures Allotted: 30

Sr. No.	Chapter No.	Chapter Name	No. of Lectures Taken	Month
1.	1.	Introduction of Bioinorganic Chemistry	04	Jan
2.	3.	Role of Inorganic Chemistry in Bioinorganic ResearchThermodynamic Aspect	08	Feb
3.	2.	Functions and Transport of Alkali and Alkaline Earth Metal Ions	06	Feb
4.	4.	Choice, Uptake and Assembly of Metal- Containing Units in Biology	03	Mar
5.	5.	Miscellaneous Topics of Bio-Inorganic Chemistry	04	Mar
			Total=25	

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### Syllabus Completion Report (2023-24)

Teacher Name: Dr. Yogesh Walunj

Class: M.Sc.-I

Sem.: II

Paper No.: CHE-553 SEC-II

Paper Name: Organic Chemistry-II

Total No. of Lectures Allotted: 30

Sr. No.	Chapter No.	Chapter Name	No. of Lectures Taken	Month
1.	1.	Molecular Rearrangements	12	Feb
2.	2.	Organic Spectroscopy	14	Mar
			Total=26	

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# Syllabus Completion Report (2023-24)

Teacher Name: Prof.Jasud J.S.

Class: M.Sc.-I

Sem.: II

Paper No.: CHE-553 SEC-II

Paper Name: Organic Chemistry-II

Total No. of Lectures Allotted: 30

Sr. No.	Chapter No.	Chapter Name	No. of Lectures Taken	Month
1.	1.	Pericyclic reactions	15	Feb
2.	2.	Photochemistry	11	Mar
			Total=26	

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# Syllabus Completion Report (2023-24)

Teacher Name: Prof.Jasud J.S.

Class: M.Sc.-I

Sem.: II

Paper No.: CHE-557

Paper Name: Organometallic Compounds and Inorganic Reaction Mechanism

Total No. of Lectures Allotted: 30

Sr. No.	Chapter No.	Chapter Name	No. of Lectures Taken	Month
1.	1.	Synthesis, Structure, Bonding and Applications of Organometallic Compounds	15	Feb
2.	2.	Inorganic Reaction Mechanism	12	Mar
			Total=27	

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Syllabus Completion Report (2023-24)

Teacher Name: Prof. Jasud J.S.

Class: M.Sc.-II

Sem.: III

Paper No.: CHO-350 Sec.-I

Paper Name: Organic Reaction Mechanism and Biogenesis

Total No. of Lectures Allotted: 24

Sr. No.	Chapter No.	Chapter Name	No. of Lectures Taken	Month
1.	1.	Methods for determining Reaction Mechanisms	04	Sept
2.	2.	Free Radicals	08	Sept
3.	3.	Cleavage of C-X, C-Sn, C-S, O-O bonds, Oxidative coupling, C-C bond formation in aromatics, SnAr reactions, Free Radicals in Organic Synthesis.	04	Oct
4.	4.	Linear Free Energy Relationships	06	Nov
			Total=22	

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### Syllabus Completion Report (2023-24)

Teacher Name: Prof. Jasud J.S.

Class: M.Sc.-II

Sem.: III

Paper No.: CHO-350 Sec.-II

Paper Name: Organic Reaction Mechanism and Biogenesis

Total No. of Lectures Allotted: 24

Sr. No.	Chapter No.	Chapter Name	No. of Lectures Taken	Month
1.	1.	Terpenoids	08	Sept
2.	2.	Alkaloids	06	Oct
3.	3.	The Shikimate pathway	08	Nov
			Total=22	

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### Syllabus Completion Report (2023-24)

Teacher Name: Prof. Jasud J.S.

Class: M.Sc.-II

Sem.: III

Paper No.: CHO-351 Sec.-I

Paper Name: Structure Determination of Organic Compounds by Spectroscopic Methods

Total No. of Lectures Allotted: 24

Sr. No.	Chapter No.	Chapter Name	No. of Lectures Taken	Month
1.	1.	NMR in Stereochemistry Determination	08	Sept
2.	2.	13C NMR spectroscopy	06	Oct
3.	3.	15N, 19F and 31P NMR spectroscopy	04	Nov
4.	4.	2D NMR spectroscopy	04	Nov
			Total=22	

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### Syllabus Completion Report (2023-24)

Teacher Name: Prof. Jasud J.S.

Class: M.Sc.-II

Sem.: III

Paper No.: CHO-351 Sec.-II

Paper Name: Structure Determination of Organic Compounds by Spectroscopic Methods

Total No. of Lectures Allotted: 24

Sr. No.	Chapter No.	Chapter Name	No. of Lectures Taken	Month
1.	1.	Mass Spectrometry	08	Sept
2.	2.	Applications of Mass Spectrometry	04	Oct
3.	3.	Analysis of Biomolecules	04	Nov
4.	4.	Problems solving	08	Nov
		Total=24	·	

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### Syllabus Completion Report (2023-24)

Teacher Name: Prof. Jasud J.S.

Class: M.Sc.-II

Sem.: III

Paper No.: CHO-352 Sec.-I

Paper Name: Organic Stereochemistry & Asymmetric Synthesis

Total No. of Lectures Allotted: 24

Sr. No.	Chapter No.	Chapter Name	No. of Lectures Taken	Month
1.	1.	Actual Shape of six membered rings ⁢'srelation to properties &reactivity.	08	Sept
2.	2.	Stereochemistry of fused and bridged ringsystems	05	Sept
3.	3.	Conformations of following compounds with justification of each	04	Oct
4.	4.	Determination of configuration by using Cram's model	03	Nov
5.	5.	Racemic Modification	03	Nov
		Total=23		

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### Syllabus Completion Report (2023-24)

Teacher Name: Prof. Pawar Rupali Yogesh

Class: M.Sc.-II

Sem.: III

Paper No.: CHO-352 Sec.-II

Paper Name: Organic Stereochemistry & Asymmetric Synthesis

Total No. of Lectures Allotted: 24

Sr. No.	Chapter No.	Chapter Name	No. of Lectures Taken	Month
1.	1.	Introduction of Asymmetric Synthesis.	04	Sept
2.	2.	Asymmetric Organocatalysis	06	Sept
3.	3.	Asymmetric Aldol Reaction,	06	Oct
4.	4.	TransitionMetal-CatalyzedHomogeneousAsymmetricHydroxylation and Epoxidation	06	Nov
5.	5.	Asymmetric Phase-Transfer and Ion Pair Catalysis	04	Nov
			Total=26	

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# Syllabus Completion Report (2023-24)

Teacher Name: Prof. Pawar Rupali Yogesh

Class: M.Sc.-II

Sem.: III

Paper No.: CHO-353 Sec.-I

Paper Name: Designing Organic Synthesis & Heterocyclic Chemistry

Total No. of Lectures Allotted: 24

Sr. No.	Chapter No.	Chapter Name	No. of Lectures Taken	Month
1.	1.	Concepts of Retro synthesis	06	Sept
2.	2.	Application of Retro synthetic Approach:	08	Sept
3.	3.	Retro synthesis and synthesis of following Molecules: Strychnine, Reserpine, Thienamycin, Asteltoxin, Indolizomycin, Erythronolide	06	Oct
			Total=20	

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Teacher Name: Prof. Pawar Rupali Yogesh

Class: M.Sc.-II

Sem.: III

Paper No.: CHO-353 Sec.-II

Paper Name: Designing Organic Synthesis & Heterocyclic Chemistry

Total No. of Lectures Allotted: 24

Sr. No.	Chapter No.	Chapter Name	No. of Lectures Taken	Month
1.	1.	Systematic nomenclature (Hantzsch- Widman System) for monocyclic, fused and bridged heterocycles. Tautomerism in aromatic heterocycles. Strain-bond angle, torsional strains and their consequences in small ring heterocycles.	04	Sept
2.	2.	General chemical behaviour of heterocyclic compounds and their applications	04	Sept
3.	3.	Synthesis, reactions and structural effects of heterocyclic rings	14	Oct
			Total=22	

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# Syllabus Completion Report (2023-24)

Teacher Name: Prof. Pawar Rupali Yogesh

Class: M.Sc.-II

Sem.: IV

Paper No.: CHO-450

Paper Name: Chemistry of Natural Products

Total No. of Lectures Allotted: 24

Sr. No.	Chapter No.	Chapter Name	No. of Lectures Taken	Month
1.	1.	Understanding & Planning of total synthesis while maintaining the stereochemistry of longifolene	09	Jan
2.	2.	Total Synthesis of1.Hirsutellone B2.Ribisins A& B	08	Feb
3.	3.	Vannusals	06	March
			Total=23	

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### Syllabus Completion Report (2023-24)

Teacher Name: Prof. Jasud J.S.

Class: M.Sc.-II

Sem.: IV

Paper No.: CHO-451

Paper Name: Organometallic Reagents in Organic Synthesis

Total No. of Lectures Allotted: 24

Sr. No.	Chapter No.	Chapter Name	No. of Lectures Taken	Month
1.	1.	Transition metal complexes in organic synthesis Pd, Ni, Ru, Fe, Ir &Cu	20	Feb- March
2.	2.	C=C formation reaction	08	March
		Total=28		

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### Syllabus Completion Report (2023-24)

Teacher Name: Prof. Pawar Rupali Yogesh

Class: M.Sc.-II

Sem.: IV

Paper No.: CHO-451

Paper Name: Organometallic Reagents in Organic Synthesis

Total No. of Lectures Allotted: 24

Sr. No.	Chapter No.	Chapter Name	No. of Lectures Taken	Month
1	3.	Multi-component Reactions	04	Feb
2.	4.	Ring Formation reactions	03	March
3.	5.	Click Chemistry	04	March
4.	6.	Metathesis	01	March
5.	7.	Use of Boron & Silicon Reagents In Organic Synthesis	03	March
			Total=15	

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### Syllabus Completion Report (2023-24)

Teacher Name: Prof. Jasud J.S.

Class: M.Sc.-II

Sem.: IV

Paper No.: CHO-452

Paper Name: Concepts and applications of Medicinal Chemistry

Total No. of Lectures Allotted: 48

Sr. No.	Chapter No.	Chapter Name	No. of Lectures Taken	Month
1.	1.	Introduction to Peptides and proteins	08	Feb- March
2.	2.	Peptides, sequencing and applications in therapeutics,	04	March
3.	3.	Introduction to medicinal Chemistry. History, drug targets, Drug discovery, design and development	04	March
4.	4.	Pharmacokinetics and Pharmacodynamics of drug	04	March
5.	5.	Structure and activity Relationship	06	March
6.	6.	Introduction, Developments, SAR, Mode of action, limitations and adverse effects	12	
			Total=38	