

Khed Taluka shikshan Prasark Mandal's

## Hutatma Rajguru Mahavidyalaya, Rajgurunagar

*Affiliated to S.P. Pune University, Pune*

*NAAC Reaccredited "B++" Grade (CGPA2.83), DST-FIST Recognized*

*College website: <https://www.hrmrajgurunagar.ac.in>, E-mail: [hrmrajguru@yahoo.co.in](mailto:hrmrajguru@yahoo.co.in),*

*Ph. No.02135222099*

### Department of Chemistry

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#### Syllabus Completion Report (2024-25)

Teacher Name: Prof. Bhambure S.M.

Class: M.Sc.-I

Sem.: II

Paper No.: CHEOD-551

Paper Name: Molecular Spectroscopy

Total No. of Lectures Allotted: 30

Total No. of Lectures Taken: 28

Sr. No.	Chapter No.	Chapter Name	No. of Lectures Taken	Month
1.	1.	Microwave Spectroscopy	04	Jan
2.	3.	Infra-Red Spectroscopy	08	Jan
3.	2.	Raman Spectroscopy	04	Feb
4.	4.	Electronic spectroscopy of molecules	08	Feb
5.	5.	Mossbauer Spectroscopy	04	Mar
			Total=28	

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### Department of Chemistry

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#### Syllabus Completion Report (2024-25)

Teacher Name: Prof. Pawar R. Y.

Class: M.Sc.-I

Sem.: II

Paper No.: CHE-552

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

Total No. of Lectures Allotted: 30

Total No. of Lectures Taken: 24

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

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### Department of Chemistry

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#### Syllabus Completion Report (2024-25)

Teacher Name: Prof. Pawar R.Y.

Class: M.Sc.-I

Sem.: II

Paper No.: CHE-552

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

Total No. of Lectures Allotted: 30

Total No. of Lectures Taken: 25

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 Research Thermodynamic 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 (2024-25)

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

Total No. of Lectures Taken: 26

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 (2024-25)

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

Total No. of Lectures Taken: 32

Sr. No.	Chapter No.	Chapter Name	No. of Lectures Taken	Month
1.	1.	Pericyclic reactions	18	Feb
2.	2.	Photochemistry	14	Mar
			Total=32	

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### Department of Chemistry

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#### Syllabus Completion Report (2024-25)

Teacher Name: Prof. Bhambure S.M.

Class: M.Sc.-I

Sem.: II

Paper No.: CHE-554

Paper Name: Physical Chemistry Pracical II

Total No. of Lectures Allotted: 60

Total No. of Lectures Taken: 30

Sr. No.	Practical Name	Date
1.	Hydrolysis of $\text{NH}_4\text{Cl}$ or $\text{CH}_3\text{COONa}$ or aniline hydrochloride.	10/01/25
2.	Determination of $\lambda_0$ or $\lambda_\infty$ and dissociation constant of acetic acid.	17/01/25
3.	Hydrolysis of ethyl acetate by $\text{NaOH}$ .	24/01/25
4.	Determination of critical micellar concentration (CMC) and $\Delta G$ of micellization of sodium Lauryl Sulphate / Detergent	21/02/25
5.	.Determination of the acid and base dissociation constant of an amino acid and hence the isoelectric point of the acid	07/03/25
6.	Determination of dissociation constants of tribasic acid (phosphoric acid)	21/03/25

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#### Syllabus Completion Report (2024-25)

Teacher Name: Prof. Bhambure S.M.

Class: M.Sc.-I

Sem.: II

Paper No.: CHE- 555

Paper Name: Inorganic Chemistry Practical II

Total No. Of Lectures Allotted: 60

Total No. Of Lectures Taken: 35

Sr.No.	Practical Name	Date
1.	Synthesis and Purity Chloropentaamminecobalt(III) chloride.	11/01/25
2.	Synthesis and Purity Nitro pentaamminecobalt(III) chloride.	18/01/25
3.	Synthesis and Purity Bis[TrisCu(I)thiourea]	25/01/25
4.	To study complex formation between Fe(III) with sulfosalicylic acid by conductometry	24/02/25
5.	To verify the Debye Huckel theory of ionic conductance for strong electrolytes KCl (1:1 type), BaCl <sub>2</sub> (1:2 type), K <sub>2</sub> SO <sub>4</sub> (2:1 type) and [K <sub>3</sub> Fe(CN) <sub>6</sub> ] (3:1 type).	03/03/25
6.	Structural determination of metal complexes by conductometric measurement – conductometric measurement of [Co(NH <sub>3</sub> ) <sub>6</sub> ]Cl <sub>3</sub> , [Co(NH <sub>3</sub> ) <sub>5</sub> ]Cl <sub>2</sub> [Co(NH <sub>3</sub> ) <sub>4</sub> ]Cl and prediction of number of ionisable chlorides.	10/03/25
7.	Determination of equilibrium constant of M – L systems Fe(III)– Sulphosalicylic acid or Fe(III)–β–resorcilic acid by Mole ratio method	22/03/25

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#### Syllabus Completion Report (2024-25)

Teacher Name: Prof. Jasud J.S.

Class: M.Sc.-I

Sem.: II

Paper No.: CHE- 560

Paper Name: Organic Chemistry Pracical II

Total No. Of Lectures Allotted: 60

Total No. Of Lectures Taken: 60

Sr.No.	Prctical Name	Date
1.	O-phenylenediamine to Benzotriazole	09/01/25
2.	Vanillin to Vanillyl alcohol	16/01/25
3.	Ethyl acetoacetate to 1-phenyl-3- Methylpyrazol-5-one	23/01/25
4.	Glycine to Hipuric acid	06/03/25
5.	O-phenylenediamine to 2-Methyl benzimidazole	28/02/25
6.	Diels alder reaction of anthracene and maleic anhydride	24/03/25
7.	Benzoin → Benzil → Benzilic acid	27/03/25
8.	Resorcinol → 4-methyl-7-hydroxycoumarin → 4-methyl-7-acetoxycoumarin	28/03/25
9.	Cyclohexanone → Phenyl hydrazone → 1, 2, 3, 4-Tetrahydro carbazole	03/03/25
10.	Phthalic anhydride → Phthalimide → Anthranilic Acid	01/04/25

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### Syllabus Completion Report (2024-25)

Teacher Name: Prof.Jasud J.S.

Class: M.Sc.-I

Sem.: II

Paper No.: CHE-557 (D)

Paper Name: Organometallic Compounds and Inorganic Reaction Mechanism

Total No. of Lectures Allotted: 30

Total No. of Lectures Taken: 27

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 (2024-25)

Teacher Name: Prof. Pawar R.Y.

Class: M.Sc.-II

Sem.: IV

Paper No.: CHO-651 Sec.-I

Paper Name: Chemistry o Natural Products

Total No. of Lectures Allotted: 30

Total No. of Lectures Taken: 24

Sr. No.	Chapter No.	Chapter Name	No. of Lectures Taken	Month
1.	1.	Synthesis, Stereochemistry and Structural Elucidation of Menthol	04	Jan
2.	2.	Longifolene: A case study- Synthesis	08	Feb
3.	3.	Total Synthesis of: a) Hirsutellone B b) Oseltamivir c) Atorvastatin d) Estrone and Mifepristone	12	Mar
			Total=24	

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### Syllabus Completion Report (2024-25)

Teacher Name: Prof. Jasud J.S.

Class: M.Sc.-II

Sem.: IV

Paper No.: CHO 651 Sec.-II

Paper Name: Chemistry o Natural Products

Total No. of Lectures Allotted: 30

Total No. of Lectures Taken: 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 (2024-25)

Teacher Name: Prof. Jasud J.S.

Class: M.Sc.-II

Sem.: IV

Paper No.: CHO-652 Sec.-I

Paper Name: Advanced Synthetic Organic Chemistry

Total No. of Lectures Allotted: 30

Total No. of Lectures Taken: 26

Sr. No.	Chapter No.	Chapter Name	No. of Lectures Taken	Month
1.	1.	<b>A. Synthetic applications of Transition metal complexes in organic synthesis</b>  <b>B. Synthetic applications of</b> Organo-Palladium reagents: Organo-Nickel reagents: Organo-Iron reagents: Organo-Cobalt reagents: Organo-Ruthenium & Organo-Rhodium reagents:	26	Jan-Feb
			Total=26	

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### Syllabus Completion Report (2024-25)

Teacher Name: Prof. Pawar R.Y.

Class: M.Sc.-II

Sem.: IV

Paper No.: CHO-652 Sec.-II

Paper Name: Advanced Synthetic Organic Chemistry

Total No. of Lectures Allotted: 30

Total No. of Lectures Taken: 26

Sr. No.	Chapter No.	Chapter Name	No. of Lectures Taken	Month
1.	1.	Metathesis Reactions:	06	Jan-Feb
2	2	Click chemistry	04	Feb
3	3	Retrosynthetic Analysis	16	Mar
			Total=26	

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### Syllabus Completion Report (2024-25)

Teacher Name: Prof. Pawar R. Y.

Class: M.Sc.-II

Sem.: IV

Paper No.: CHO-653

Paper Name: Convergent & Divergent Organic Synthesis

Total No. of Lectures Allotted: 60

Total No. of Lectures Taken: 60

Sr. No.	Prctical Name	Date
1.	<b>SET-II A) Convergent Synthesis (Three Stage Synthesis)</b> Stage I: 4-Nitro toluene to 4-amino toluene (Reduction by using Sn/HCl)	18/01/25
2.	Stage II: Phenol into 2-hydroxy benzaldehyde (Reimer-Tiemann reaction)	20/01/25
3.	Stage III: Synthesis of amidoalkyl-2-naphthols from $\beta$ -Naphthol, 4-amino toluene and of 2-hydroxy benzaldehyde (One pot synthesis: MCR)	23/01/25
4.	<b>B) Divergent Synthesis</b> $\beta$ -Naphthol to Synthetic dye (By diazonium coupling)	28/02/25
5.	$\beta$ -Naphthol to $\beta$ -Naphthyl methyl ether (Methylation reaction)	25/02/25

6.	<b>SET-IV A) Convergent Synthesis (Three Stage Synthesis)</b> Stage I: Benzene to acetophenone (F.C acylation)	03/02/25
7.	Stage II: 4-Nitrochlorobenzene into 4-amino chlorobenzene (Reduction by using hydrazine)	04/02/25
8.	Stage III: Quinoline synthesis by using acetophenone, 4-amino chloro benzene and styrene (One pot synthesis: [3 + 2 + 1] cycloaddition reaction)	03/03/25
9.	<b>Divergent Synthesis-4 (5 Single Stage Synthesis from Acetophenone)</b> Acetophenone to Ethyl benzene by Wolf Kishner reduction	18/03/25
10.	Acetophenone to m-Nitro acetophenone by nitration	06/03/25
11.	Acetophenone to Chalcone using aromatic aldehyde	19/03/25
12.	Acetophenone into Schiff base using aromatic amine	25/03/25

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### Syllabus Completion Report (2024-25)

Teacher Name: Prof. Pawar R.Y.

Class: M.Sc.-II

Sem.: IV

Paper No.: CHO-654

Paper Name: Green Chemistry Synthesis

Total No. of Lectures Allotted: 60

Total No. of Lectures Taken: 60

Sr. No.	Prctical Name	Date
1.	Diazepinone synthesis	10/02/25
2.	Alumina-supported permanganate oxidation	11/02/25
3.	Rearrangement of diazoaminobenzene to p-aminoazobenzene	12/02/25
4.	Knoevenagel condensation	17/02/25
5.	Synthesis of dihydropyrimidinone	18/02/25
6.	Beckmann rearrangement	20/02/25

7.	1,3-dithiolane Synthesis	24/02/25
8.	Clay catalysed solid state synthesis of 7-hydroxy-4-methylcoumarin	25/02/25
9.	Preparation of 1, 1-bis-2-naphthol from 2-naphthol	03/03/25
10.	Pinacol coupling reaction by using Zn-ZnCl <sub>2</sub>	04/03/25
11.	Reformatsky reaction/Luche reaction	06/03/25
12.	Preparation of benzopinacolone from Benzopinacol using iodine	08/03/25

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### Syllabus Completion Report (2024-25)

Teacher Name: Prof. Pawar Rupali Yogesh

Class: M.Sc.-II

Sem.: IV

Paper No.: CHO-655 (A)

Paper Name: Asymmetric Synthesis

Total No. of Lectures Allotted: 30

Total No. of Lectures Taken: 24

Sr. No.	Chapter No.	Chapter Name	No. of Lectures Taken	Month
1.	1.	Principle & Application of Asymmetric Synthesis	12	Feb
2.	2.	Asymmetric Synthesis	12	Mar
			Total=24	

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#### Syllabus Completion Report (2024-25)

Teacher Name Prof. Jasud J.S.

Class: M.Sc.-II

Sem.: IV

Paper No.: CHO-655 (C)

Paper Name: Industrial Organic Chemistry

Total No. of Lectures Allotted: 30

Total No. of Lectures Taken: 26

Sr. No.	Chapter No.	Chapter Name	No. of Lectures Taken	Month
1.	1.	Industrial Organic Chemicals.	10	Jan
2.	2.	Sources of Chemicals Other than Petroleum and Natural Gas	02	Feb
3.	3.	Catalysts	02	Feb
4.	4.	Fermentation technology	04	Mar
5.	5.	Pharmaceuticals	08	Apr
			Total=26	

