

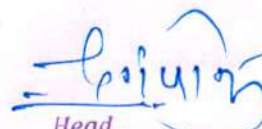
**Rajarshi Shahu Mahavidyalaya, Latur**  
(Autonomous)  
Department of Chemistry and Analytical Chemistry  
Structured Work Plan for Teaching  
Academic Year 2025-26 (Term-I)

Name of Teacher: Dr. Kundan Chandramani Tayade

1. Details of Classes to be Taught

Sr. No.	Name of Assistant Professor	Subject	Class	Paper
1	Dr. Kundan Chandramani Tayade	Analytical Chemistry	B.Sc. III Sem V	Instrumental Methods of Chemical Analysis <b>301ACH5301</b>
2		Chemistry	M.Sc. I Sem I	Research Methodology <b>601CHE1301</b>
3		Analytical Chemistry	B.Sc. II Sem III	Laboratory Course-I <b>201ACH3302</b> <b>Batch: S<sub>3</sub></b>
4		Analytical Chemistry	B.Sc. III Sem V	Laboratory Course III <b>301ACH5302</b> <b>Batch: T<sub>1</sub></b>
5		Chemistry	M.Sc. I Sem I	Laboratory Course-IV <b>601CHE1203</b> <b>Batches: P<sub>1</sub>C<sub>1</sub>, P<sub>1</sub>C<sub>2</sub></b>

  
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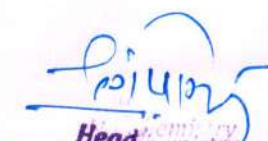


  
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2. Summary of Lesson Plan  
Program: B.Sc. III (Fifth Semester)

Sr. No.	Subject	Unit and Chapter to be Covered	Date	No. of Lectures	Academic activities to be organized	No. of Test / Assignment with topic and date
1	Analytical Chemistry	<b>Unit –I</b> Spectroscopic Methods - Visible Spectroscopy	23.06.2025 To 16.07.2025	12	Home Assignments, Tutorials, Seminars, ICT.	Unit Test Based on the first 50% syllabus
2		<b>Unit –II</b> Spectroscopic Methods - Absorption Spectroscopy	21.07.2025 To 26.08.2025	13		
3		<b>Unit -III</b> Electron Microscopic Methods	01.09.2025 To 24.09.2025	12		
4		<b>Unit -IV</b> Atomic Force Microscope (AFM)	29.09.2025 To 14.10.2025	08		

  
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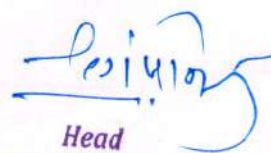


  
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Program: M.Sc. I (First Semester)

Sr. No.	Subject	Unit and Chapter to be Covered	Date	No. of Lectures	Academic activities to be organized	No. of Test / Assignment with topic and date
1	Chemistry/Physics/Botany/Zoology/Microbiology/Computer Science/Maths	<b>Unit -I</b> Introduction and Methods of Research	15.07.2025 To 07.08.2025	15	Home Assignments, Training on Software's	Unit Test Based on the first 50% syllabus
2		<b>Unit -II</b> Design and Sampling	19.08.2025 To 11.09.2025	15		
3		<b>Unit -III</b> Collection and Data Processing	15.09.2025 To 08.10.2025	15		
4		<b>Unit -IV:</b> Report Writing and Evaluation	09.10.2025 To 14.10.2025	15		

  
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Department of Chemistry and Analytical Chemistry  
Structured Work Plan for Teaching (Even Semester)  
Academic Year 2025-26 (Term-II)

Name of Teacher: Dr. Kundan Chandramani Tayade

w.e.f. 01.12.2025

Workload (Per Week): 18

1. Details of Classes to be Taught

Sr. No.	Name of Professor	Subject	Class	Course Type	Course Title	Course Code	Total Hours	Credit
1	Dr. Kundan Chandramani Tayade	Analytical Chemistry	B.Sc. III Sem VI	DSM-IV	Modern Techniques of Chemical Analysis	301ACH6301	45	03

Sr. No.	Subject	Unit and Chapter to be Covered	Date	No. of Lectures	Academic Activities to be Organized	No. of Test / Assignment with Topic and Date
1	Analytical Chemistry	<b>Unit –I</b> Infrared Spectrophotometry	01.12.2025 To 30.12.2025	13	Google Form Quiz	CAT I (Activity Based)
2		<b>Unit –II</b> <sup>1</sup> H NMR Spectroscopy	31.12.2025 To 02.02.2026	11	Kahoot Quiz	CAT II (Activity Based)
3		<b>Unit -III</b> Mass Spectrometry	03.02.2026 To 03.03.2026	13	Google Form Quiz	CAT III (MCQ on 75 % Syllabus)
4		<b>Unit -IV</b> Fluorescence Spectroscopy	09.03.2026 To 31.03.2026	08	Jeopardy Quiz	Semester End Exam (SEE) (on 100 % Syllabus)

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Name of Teacher: Dr. Kundan Chandramani Tayade

w.e.f. 01.12.2025

Workload (Per Week): 18

2. Details of Classes to be Taught

Sr. No.	Name of Professor	Subject	Class	Course Type	Course Title	Course Code	Total Hours	Credit
1	Dr. Kundan Chandramani Tayade	Chemistry	M.Sc. I Sem II	MEC-II	Physical Methods in Chemistry-II	601CHE2201	45	03

Sr. No.	Subject	Unit and Chapter to be Covered	Date	No. of Lectures	Academic Activities to be Organized	No. of Test / Assignment with Topic and Date
1	Chemistry	<b>Unit –I</b> Polarography & Voltammetry	04.12.2025 To 01.01.2026	13	Google Form Quiz	CAT I (Activity Based)
2		<b>Unit –II</b> AAS (Atomic absorption Spectroscopy) Flame photometry (Flame Emission Spectroscopy)	02.01.2026 To 24.01.2026	10	Kahoot Quiz	CAT II (Activity Based)
3		<b>Unit -III</b> Thermal Methods	29.01.2026 To 21.02.2026	10	Google Form Quiz	CAT III (MCQ on 75 % Syllabus)
4		<b>Unit -IV</b> Fluorescence Spectroscopy	26.02.2026 To 28.03.2026	12	Jeopardy Quiz	Semester End Exam (SEE) (on 100 % Syllabus)

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Name of Teacher: Dr. Kundan Chandramani Tayade

w.e.f. 01.12.2025

Workload (Per Week): 18

1. Details of Classes to be Taught

Sr. No.	Name of Professor	Subject	Class	Course Type	Course Title	Course Code	Batch	Total Hours	Credit
1	Dr. Kundan Chandramani Tayade	Chemistry	M.Sc. I Sem II	MEC-II	Laboratory Course-VIII	601CHE2203	P <sub>1</sub> C <sub>2</sub>	30	01

Sr. No.	Equipment/Type	Experiments	Date	No. of Hours
1	pH-metry	1. Acid-Base titration in non-aqueous media by pH-metry (Benzoic Acid in Ethanol/NaOH).	05.12.2025	3 per Practical
2		2. Determination of pK <sub>a</sub> of weak acid by pH-metry.	12.12.2025	
3	Potentiometry	3. To Prepare the Buffer solutions and to determine their pH by Potentiometric Method (any Five buffers) and by theoretical calculations using Henderson's equation.	19.12.2025	
4	Flame Photometry	4. Estimation of Na <sup>+</sup> by Flame Photometry.	26.12.2025	
5		5. Estimation of K <sup>+</sup> by Flame Photometry.	02.01.2026	
6		6. Estimation of Ca <sup>2+</sup> in Egg Shell by Flame Photometry	09.01.2026	
7	Colorimetry	7. Verification of Beer's law for KMnO <sub>4</sub> .	16.01.2026	
8		8. Verification of Beer's law for Cu <sup>2+</sup> ammonia complex solution	23.01.2026	
9		9. Determination of empirical formula for the formation of ferric salicylate complex by Job's method.	30.01.2026	
10		10. Determination of stability constant for the formation of complex between Fe <sup>3+</sup> ions and 5-sulphosalicylic acid.	06.02.2026	
11	Thermogravimetry	11. Determination of Thermal Decomposition Temperature of CaCO <sub>3</sub> .	13.02.2026	
12		12. Study of Thermal Decomposition contour of Ca(COO) <sub>2</sub> .2H <sub>2</sub> O.	20.02.2026	
13	Heterogeneous Equilibria	13. Determine the formula of complex formed between Cupric ions and Ammonia by distribution Method.	27.02.2026	
14	Complexometry	14. Determination of hardness of water by complexometric titration.	06.03.2026	
15	X-ray Diffraction	15. Determination of XRD Pattern of NaCl.	13.03.2026	

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w.e.f. 01.12.2025

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Name of Teacher: Dr. Kundan Chandramani Tayade

**I. Details of Classes to be Taught**

Sr. No.	Name of Professor	Subject	Class	Course Type	Course Title	Course Code	Batch	Total Hours	Credit
1	Dr. Kundan Chandramani Tayade	Chemistry	M.Sc. I Sem II	MEC-II	Laboratory Course-VIII	601CHE2203	P <sub>1</sub> C <sub>2</sub>	30	01

Sr. No.	Equipment/Type	Experiments	Date	No. of Hours
1	pH-metry	1. Acid-Base titration in non-aqueous media by pH-metry (Benzoic Acid in Ethanol/NaOH).	06.12.2025	3 per Practical
2		2. Determination of pK <sub>a</sub> of weak acid by pH-metry.	13.12.2025	
3	Potentiometry	3. To Prepare the Buffer solutions and to determine their pH by Potentiometric Method (any Five buffers) and by theoretical calculations using Henderson's equation.	20.12.2025	
4	Flame Photometry	4. Estimation of Na <sup>+</sup> by Flame Photometry	27.12.2025	
5		5. Estimation of K <sup>+</sup> by Flame Photometry	03.01.2026	
6		6. Estimation of Ca <sup>2+</sup> in Egg Shell by Flame Photometry	10.01.2026	
7	Colorimetry	7. Verification of Beer's law for KMnO <sub>4</sub> .	17.01.2026	
8		8. Verification of Beer's law for Cu <sup>2+</sup> ammonia complex solution	24.01.2026	
9		9. Determination of empirical formula for the formation of ferric salicylate complex by Job's method.	31.01.2026	
10		10. Determination of stability constant for the formation of complex between Fe <sup>3+</sup> ions and 5-sulphosalicylic acid.	07.02.2026	
11	Thermogravimetry	11. Determination of Thermal Decomposition Temperature of CaCO <sub>3</sub>	14.02.2026	
12		12. Study of Thermal Decomposition contour of Ca(COO) <sub>2</sub> .2H <sub>2</sub> O	21.02.2026	
13	Heterogeneous Equilibria	13. Determine the formula of complex formed between Cupric ions and Ammonia by distribution Method	28.02.2026	
14	Complexometry	14. Determination of hardness of water by complexometric titration.	07.03.2026	
15	X-ray Diffraction	15. Determination of XRD Pattern of NaCl	14.03.2026	

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w.e.f. 01.12.2025

Workload (Per Week): 18

**I. Details of Classes to be Taught**

Sr. No.	Name of Professor	Subject	Class	Course Type	Course Title	Course Code	Batch	Total Hours	Credit
1	Dr. Kundan Chandramani Tayade	Analytical Chemistry	B.Sc. II Sem IV	DSM-II	Laboratory Course-II	201ACH4302	S <sub>3</sub>	30	01

Sr. No.	Equipment/Type	Experiments	Date	No. of Hours
1	Gravimetric Analysis	1. Determination of iron as iron (III) oxide by gravimetric analysis.	02.12.2025	2 per Practical
2		2. Determination of Aluminium as Aluminium Oxide.		
3		3. Gravimetric estimation of Ba as BaSO <sub>4</sub> from a solution containing barium chloride and free hydrochloric acid.	09.12.2025	
4		4. Gravimetric estimation of Ba as Barium Chromate from a solution containing barium chloride.	16.12.2025	
5		5. Gravimetric estimation of Nickel as [Ni(DMG) <sub>2</sub> ] complex.	23.12.2025	
6		6. Estimate the amount of Zinc in the given Zinc Sulphate solution Gravimetrically.	30.12.2025	
7	Flame Photometry	7. Estimation of Na <sup>+</sup> by Flame Photometry	06.01.2026	
8		8. Estimation of K <sup>+</sup> by Flame Photometry	13.01.2026	
9		9. Estimation of Ca <sup>2+</sup> in Egg Shell by Flame Photometry	20.01.2026	
10	Chromatography	10. Separation of components of a mixture by TLC.	27.01.2026	
11		11. Separation of amino acids using paper chromatography.	03.02.2026	
12		12. Column Chromatographic Separation of Inorganic Substances.	10.02.2026	
13		13. Separation of ink components by column chromatography.	17.02.2026	
14	Colorimetry	14. Estimation of amino acids by colorimetry.	24.02.2026	
15		15. Colorimetric estimation of proteins by biuret method.	03.03.2026	

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Sr. No.	Name of Professor	Subject	Class	Course Type	Course Title	Course Code	Batch	Total Hours	Credit
1	Dr. Kundan Chandramani Tayade	Chemistry	B.Sc. II Sem IV	SEC	Skills in Chemistry	201ACH4302	S <sub>1</sub>	30	01

Sr. No.	Equipment/Type	Experiments	Date	No. of Hours
1	Calibration & Handling	1. Understand the apparatus handling technique.	03.12.2025	4  2 per Practical
2		2. Calibration of pH-meter.		
3		3. Calibration of UV-Visible spectrophotometer.		
4	Nano Chemistry	4. Synthesis of CaO nanoparticles and its characterization by UV-Visible spectrophotometry.	10.12.2025	
5		5. Preparation of ZnO Nanoparticles and its characterization by UV-Visible spectrophotometry.	17.12.2025	
6	Analysis	6. To determine the Total Dissolved Solid (TDS) of water.	24.12.2025	
7		7. Determination of magnesium oxide (MgO) in talcum powder by complexometric titration method.	31.12.2025	
8		8. Determination of assay of caustic soda	07.01.2026	
9		9. Determination of carbon dioxide in carbonated beverage.	21.01.2026	
10	Synthesis	10. Determination of milk of magnesia in antacid sample.	28.01.2026	
11		11. Synthesis of aspirin.	04.02.2026	
12		12. Synthesis of paracetamol.	11.02.2026	
13	Chromatography	13. Synthesis of Soaps/Detergent.	18.02.2026	
14		14. Determination of ion-exchange capacity of anion-exchange resin.	25.02.2026	
15		15. Investigation and separation of the organic pigments in the paint sample by TLC.	11.03.2026	
			18.03.2026	

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**1. Details of Classes to be Taught**

Sr. No.	Name of Professor	Subject	Class	Course Type	Course Title	Course Code	Batch	Total Hours	Credit
1	Dr. Kundan Chandramani Tayade	Chemistry	B.Sc. III Sem VI	DSM	Laboratory Course-III	301ACH6302	T <sub>1</sub>	30	01

Sr. No.	Equipment/Type	Experiments	Date	No. of Hours
1	Fluorometry	1. Determination of B <sub>12</sub> in given drug sample by fluorometry.	04.12.2025	2 per Practical
2	Refractometry	2. To determine the refractive index of various organic solvents using Abbe's refractometer.	11.12.2025	
3	Spectroscopy	3. Determination of functional groups of given compounds by IR spectrophotometry.	18.12.2025	
4		4. Study of complexes by IR spectrophotometry.	25.12.2025	
5		5. Table work for UV, IR, <sup>1</sup> H-NMR, <sup>13</sup> C-NMR and Mass Spectrometry.	01.01.2026	
6		6. Dye Concentration Using a UV-Vis Spectrophotometer	08.01.2026	
7	Colorimetry	6. Determination of Cobalt and Nickel Colorimetrically.	15.01.2026	
8		7. Determination of iron in food sample by spectrophotometry.	22.01.2026	
9		8. Determination of fluoride in given sample solution by zirconyl-Alizarin red method colorimetrically.	29.01.2026	
10		9. Determination of Chromium and Manganese Colorimetrically (using simultaneous equation)	05.02.2026	
11		10. To obtain the spectral absorption curve of the given substance using a spectrophotometer and find out wavelength of maximum absorption.	26.02.2026	
12		11. Determination of vitamin A by Carr Price method colorimetrically.	05.03.2026	
13		12. Determination of phosphate in detergents by spectrophotometry.	12.03.2026	
14	Polarimetry	14. Determination of the specific rotation of cane sugar.	As per availability	
15	Nephelometrically	15. Determination of chloride nephelometrically.		

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