

Bachelor of Science in Chemistry

[3 Years Regular/4 Years (Honours/Honours with Research)]

Faculty of Applied Sciences

Parul University

Teaching and Examination Scheme for Batch 2023-24

(NOTE: A credit is a unit by which the coursework is measured. It determines the number of hours of instruction required per week over the duration of a semester (Minimum 15 weeks/ 90 days)

1 Theory Credit = 15 hours of academic activity engagement in a semester

1 Credit of (Practical/Internship/workshop-based activity/ Self-Learning-Online/Offline) = 30 Hours of engagement in a semester

1 Credit of Experiential learning (Field Visit/ Industry Visit)/ Assignments = 40-45 hours of engagement in a semester.

Research Project/Dissertation: Entire Seventh & Eighth Semesters (12 Credits)

Bachelor of Science Chemistry with Minor in

1. Physics

2. Maths

3. Industrial Safety

4. Life Science

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Semester 2

				Teaching Scheme (Hours / Week)			Internal Marks			External Marks		Passing Marks (Theory + CE)	Passing Marks (Practical)	Total Marks
NCrF Credit Level	Code	Subject	Credit	Lect	Lab	Tut	T	P	CE	T	P	Int.+Ext.	Int.+Ext.	
4.5		Major (Discipline Specific Course)												
	11010502DS01	Basics of Organic Chemistry-II	2	2	-	-	20	-	20	60	-	40	-	100
	11010502DS02	Inorganic Chemistry - II	2	2	-	-	20	-	20	60	-	40	-	100
	11010502DS03	Lab-1 : Organic Practicals	2	-	4	-	-	20	-	-	30	-	25	50
	11010502DS04	Lab-2 : Inorganic Qualitative Analysis	2	-	4	-	-	20	-	-	30	-	25	50
		Minor-2 / Interdisciplinary Course (Select any one)												
	11010402PH01	Physics: Theory of Semiconductor Devices	3	3	-	-	20	-	20	60	-	40	-	100
	11010402PH02	Physics: Lab-3 Physics	1	-	2	-	-	20	-	-	30	-	25	50
	11010602MA01	Maths: Vector Calculus	4	3	-	1	20	-	20	60	-	40	-	100
	11011202LS01	Life Science: Basics of Microbiology	3	3	-	-	20	-	20	60	-	40	-	100
	11011202LS02	Life Science: Lab-3 : Basics of Microbiology	1	-	2	-	-	20	-	-	30	-	25	50
	11010502IN02	Industrial Safety: Basics of Industrial Safety - II	4	3	2	-	20	-	20	60	-	40	-	100
		University Electives -2 (Multidisciplinary course) (Select any one)												
	03010602UE01	Maintenance of Household Apparatus	4	3	2	-	20	20	20	60	30	40	25	150
	15010402UE01	Human Psychology		4	-	-	20	-	20	60	-	40	-	100
	19010002UE01	Digital Health		4	-	-	20	-	20	60	-	40	-	100
	19010202UE01	Public Health Nutrition		3	2	-	20	20	20	60	30	40	25	150
		Skill Enhancement Course -2												
	00019101SE01	Mathematical Aptitude	2	2	-	-	-	20	-	20	60	-	40	100
		Value Added Course-2												
	00019302VA01	IPDC including History and Culture of India and IKS-I	2	2	-	-	-	-	100	-	-	40	-	100

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Semester 3

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Semester 4

				Teaching Scheme (Hours / Week)			Internal Marks			External Marks		Passing Marks (Theory + CE)	Passing Marks (Practical)	Total Marks
NCrF Credit Level	Code	Subject	Credit	Lect	Lab	Tut	T	P	CE	T	P	Int.+Ext.	Int.+Ext.	
5.0		Major (Discipline Specific Course)												
	11010504DS01	Aspects of Inorganic Chemistry	4	4	-	-	20	-	20	60	-	40	-	100
	11010504DS02	Applied Chemistry - II	4	4	-	-	20	-	20	60	-	40	-	100
	11010504DS03	Lab-1 : Inorganic Qualitative Analysis	2	-	4	-	-	20	-	-	30	-	25	50
	11010504DS04	Lab-2 : Applied Chemistry - II	2	-	4	-	-	20	-	-	30	-	25	50
		Minor-3 / Interdisciplinary Course (Select any one)												
	11010404PH01	Physics: Electronics	3	3	-	-	20	-	20	60	-	40	-	100
	11010404PH02	Physics: Lab-3 (Physics)	1	-	2	-	-	20	-	-	30	-	25	50
	1100604MA01	Maths: Differential Equation	4	3	-	1	20	-	20	60	-	40	-	100
	11011204LS01	Life Science: Biochemistry	3	3	-	-	20	-	20	60	-	40	-	100
	11011204LS02	Life Science: Lab-3 : Biochemistry	1	-	2	-	-	20	-	-	30	-	25	50
	11010504IN01	Industrial Safety: Fire and Safety - I	3	3	-	-	20	-	20	60	-	40	-	100
	11010504IN02	Industrial Safety: Lab-3 : Fire and Safety - I	1	-	2	-	-	20	-	-	30	-	25	50
		Skill Enhancement Course -4												
	11010504SE01	Computational Chemistry	2	2	-	-	20	-	20	60	-	40	-	100
		Value Added Course-4/ Physical Education (Select any one)												
	19010204VA01	Positive Mental Health	2	2	-	-	20	-	20	60	-	40	-	100
	00019404VA01	Physical Education: Yoga		1	2	-	20	20	20	60	30	40	20	150

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Semester 5

				Teaching Scheme (Hours / Week)			Internal Marks			External Marks		Passing Marks (Theory + CE)	Passing Marks (Practical)	Total Marks
NCrF Credit Level	Code	Subject	Credit	Lect	Lab	Tut	T	P	CE	T	P	Int.+Ext.	Int.+Ext.	
5.5		Major (Discipline Specific Course)												
	11010505DS01	Aspects of Organic Chemistry	4	4	-	-	20	-	20	60	-	40	-	100
	11010505DS02	Nuclear Chemistry & Physical Instrumentation	3	3	-	-	20	-	20	60	-	40	-	100
	11010505DS03	Analytical Chemistry - I	3	3	-	-	20	-	20	60	-	40	-	100
	11010505DS04	Lab-1 : Organic Spotting	2	-	4	-	-	20	-	30	-	-	25	50
		Minor-4 / Interdisciplinary Course (Select any one)												
	11010405PH01	Physics: Mathematical Physics	3	3	-	-	20	-	20	60	-	40	-	100
	11010405PH02	Physics: Lab - 2 : Physics	1	-	2	-	-	20	-	30	-	-	25	50
	11010605MA01	Maths: Linear Algebra	4	3	-	1	20	-	20	60	-	40	-	100
	11011205LS01	Life Science: Molecular Biology	3	3	-	-	20	-	20	60	-	40	-	100
	11011205LS02	Life Science: Lab -2 : Molecular Biology	1	-	2	-	-	20	-	30	-	-	25	50
	11010505IN01	Industrial Safety: Fire and Safety - II	3	3	-	-	20	-	20	60	-	40	-	100
	11010505IN02	Industrial Safety: Lab - 2 : Fire and Safety - II	1	-	2	-	-	20	-	30	-	-	25	50
		Minor-5 / Interdisciplinary Course (Select any one)												
	11010405PH03	Physics: Solid State Physics	3	3	-	-	20	-	20	60	-	40	-	100
	11010405PH04	Physics: Lab - 3 : Physics	1	-	2	-	-	20	-	-	30	-	25	50

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Semester 6

				Teaching Scheme (Hours / Week)			Internal Marks			External Marks		Passing Marks (Theory + CE)	Passing Marks (Practical)	Total Marks
NCrF Credit Level	Code	Subject	Credit	Lect	Lab	Tut	T	P	CE	T	P	Int.+Ext.	Int.+Ext.	
		Major (Discipline Specific Course)												
5.5	11010506DS01	Symmetry and Group Theory	3	3	-	-	20	-	20	60	-	40	-	100
	11010506DS02	Analytical Chemistry - II	4	4	-	-	20	-	20	60	-	40	-	100
	11010506DS03	Electrochemistry	3	3	-	-	20	-	20	60	-	40	-	100
	11010506DS04	Lab-1 : Gravimetry analysis and Inorganic Preparation	2	-	4	-	-	20	-	-	30	-	25	50
		Minor-6 / Interdisciplinary Course (Select any one)												
	11010406PH01	Physics: Modern Physics	3	3	-	-	20	-	20	60	-	40	-	100
	11010406PH02	Physics: Lab - 2 (Optics)	1	-	2	-	-	20	-	-	30	-	25	50
	11010606MA01	Maths: Numerical Methods using MATLAB	4	3	2	-	20	20	20	60	30	40	25	150
	11011206LS01	Life Science: Bio-process Engineering	4	4	-	-	20	-	20	60	-	40	-	100
	11010506IN01	Industrial Safety: Safety Practices - I	4	3	2	-	20	-	20	60	-	40	-	100
		Ability Enhancement Course -5												
	00019306AE01	Professional Ethics and Communication	2	2	-	-	-	-	100	-	-	40	-	100
	11011706IN01	Internship/Mini Project-1 (in Major Specific Course)	4	-	8	-	-	40	-	-	60	-	50	100
		Total	22											

Internship Guidelines: 30 days (120 Hrs.)

Semester 7

				Teaching Scheme (Hours / Week)			Internal Marks			External Marks		Passing Marks (Theory + CE)	Passing Marks (Practical)	Total Marks
NCrF Credit Level	Code	Subject	Credit	Lect	Lab	Tut	T	P	CE	T	P	Int.+Ext.	Int.+Ext.	
6.0		Major (Discipline Specific Course)												
	11010507DS01	Basic Name Reactions	4	4	-	-	20	-	20	60	-	40	-	100
	11010507DS02	Nanomaterial Chemistry	3	3	-	-	20	-	20	60	-	40	-	100
	11010507DS03	Organometallics and Magneto Chemistry	3	3	-	-	20	-	20	60	-	40	-	100
	11010507DS04	Lab-I : Synthesis of Organic Compounds	2	-	4	-	-	20	-	-	30	-	25	50
		Minor-7 / Interdisciplinary Course (Select any one)												
	11010407PH01	Physics: Thermodynamics and Statistical Physics	4	4	-	-	20	-	20	60	-	40	-	100
	11010607MA01	Maths: Probability	4	4	-	-	20	-	20	60	-	40	-	100
	11011207LS01	Life Science: Industrial Biotechnology	4	4	-	-	20	-	20	60	-	40	-	100
	11010507IN01	Industrial Safety: Safety Practices – II	4	4	-	-	20	-	20	60	-	40	-	100
	11011707IN01	On Job Training (OJT)- in Major Specifics (for Honours Degree)	6	-	12	-	-	60	-	-	90	-	75	150
		OR												
	11010507RP01	Research Methodology in Major Specific course (For Honours with Research degree)	6	-	12	-	-	60	-	-	90	-	75	150
		Total	22											

Research Project Guidelines: Advanced – level disciplinary/interdisciplinary courses related to topic selection and research methodology and initial stage of research will be conducted like: determining the definition of the information needed, determining the methods of collection of qualitative and quantitative data, conducting secondary data analysis etc.

On-the-Job Training Guidelines: 45 days (180 Hrs.)

Semester 8

				Teaching Scheme (Hours / Week)			Internal Marks			External Marks		Passing Marks (Theory + CE)	Passing Marks (Practical)	Total Marks
NCrF Credit Level	Code	Subject	Credit	Lect	Lab	Tut	T	P	CE	T	P	Int.+Ext.	Int.+Ext.	
6.0		Major (Discipline Specific Course)												
	11010508DS01	Advanced Analytical Techniques	4	4	-	-	20	-	20	60	-	40	-	100
	11010508DS02	Catalysis	4	4	-	-	20	-	20	60	-	40	-	100
	11010508DS03	Green Chemistry	4	4	-	-	20	-	20	60	-	40	-	100
		Minor-8 / Interdisciplinary Course (Select any one)												
	11010408PH01	Physics: Experimental Techniques	4	4	-	-	20	-	20	60	-	40	-	100
	11010608MA01	Maths: Statistical Methods	4	4	-	-	20	-	20	60	-	40	-	100
	11011208LS01	Life Science: Good Laboratory and Manufacturing Practices	4	4	-	-	20	-	20	60	-	40	-	100
	11010508IN01	Industrial Safety: Accident Case studies & Investigation	4	4	-	-	20	-	20	60	-	40	-	100
	11011708IN01	On Job Training (OJT) - in Major Specific (for Honours Degree)	6	-	12	-	-	60	-	-	90	-	75	150
		OR												
	11010508RP01	Research Project in Major Specific course (For Honours with Research degree)	6	-	12	-	-	60	-	-	90	-	75	150
		Total	22											
Total Credit of the Programme			176											

Research Project Guidelines:

The final semester will be devoted to seminar presentation, preparation and submission of research project report/dissertation. The project work/dissertation will be on a topic in the disciplinary programme of study or an interdisciplinary topic.

On-the-Job Training Guidelines: 45 days (180 Hrs.)

Note: Course Curriculum from 4th Semester up to 8th semester may undergo revision. Any revision to this effect will be uploaded on the University Website. Students are requested to visit the University Website for any updates related to the revision in the course curriculum or shall contact Dean/HoI/Hod for the same.