

M.Sc Chemistry Curriculum 2025-27

Semester -I

<i>S. No.</i>	<i>Course Type</i>	<i>Course Title</i>	<i>L</i>	<i>T</i>	<i>P</i>	<i>C</i>
<i>1</i>	<i>Discipline Core 1</i>	<i>Stereochemistry & Reaction mechanisms</i>	<i>4</i>	<i>0</i>	<i>2</i>	<i>6</i>
<i>2</i>	<i>Discipline Core 2</i>	<i>Advanced Inorganic Chemistry and Spectroscopy</i>	<i>3</i>	<i>0</i>	<i>2</i>	<i>5</i>
<i>3</i>	<i>Discipline Core 3</i>	<i>Chemical Dynamics and Interface Science</i>	<i>4</i>	<i>0</i>	<i>2</i>	<i>6</i>
<i>4</i>	<i>Discipline Core 4</i>	<i>Advanced Analytical Chemistry: Principles, Techniques, and Applications</i>	<i>3</i>	<i>0</i>	<i>1</i>	<i>4</i>
<i>5</i>	<i>University Core 1</i>	<i>Professional Communication</i>	<i>0</i>	<i>0</i>	<i>2</i>	<i>2</i>
		Total	15	0	8	23

Semester -II

<i>S. No.</i>	<i>Course Type</i>	<i>Course Title</i>	<i>L</i>	<i>T</i>	<i>P</i>	<i>C</i>
<i>1</i>	<i>Discipline Core 5</i>	<i>Organic Spectroscopy</i>	<i>4</i>	<i>0</i>	<i>0</i>	<i>4</i>
<i>2</i>	<i>Discipline Core 6</i>	<i>Reaction mechanism and Group theory</i>	<i>3</i>	<i>0</i>	<i>0</i>	<i>3</i>
<i>3</i>	<i>Discipline Core 7</i>	<i>Quantum Chemistry and Molecular Spectroscopy</i>	<i>4</i>	<i>0</i>	<i>2</i>	<i>6</i>
<i>4</i>	<i>Discipline Core 8</i>	<i>Advanced Analytical Separation and Instrumental Techniques</i>	<i>3</i>	<i>0</i>	<i>2</i>	<i>5</i>
<i>5</i>	<i>Discipline Core 9</i>	<i>Computer Applications for chemistry</i>	<i>1</i>	<i>0</i>	<i>1</i>	<i>2</i>
<i>6</i>	<i>Elective 1</i>	<i>Elective 1</i>	<i>3</i>	<i>0</i>	<i>0</i>	<i>3</i>
		Total	18	0	5	23

Semester –III (Inorganic Chemistry Specialization)

<i>S. No.</i>	<i>Course Type</i>	<i>Course Title</i>	<i>L</i>	<i>T</i>	<i>P</i>	<i>C</i>
<i>1</i>	<i>DSE 1</i>	<i>Organometallic Chemistry and Applications</i>	<i>4</i>	<i>0</i>	<i>1</i>	<i>5</i>
<i>2</i>	<i>DSE 2</i>	<i>Spectroscopic techniques in Inorganic Chemistry</i>	<i>4</i>	<i>0</i>	<i>1</i>	<i>5</i>
<i>3</i>	<i>DSE 3</i>	<i>Bio-Inorganic Chemistry</i>	<i>4</i>	<i>0</i>	<i>1</i>	<i>5</i>
<i>4</i>	<i>Elective 2</i>	<i>Elective 2</i>	<i>3</i>	<i>0</i>	<i>0</i>	<i>3</i>
<i>5</i>	<i>University Core 2</i>	<i>Research Methodology</i>	<i>2</i>	<i>0</i>	<i>0</i>	<i>2</i>
<i>6</i>	<i>University Core 3</i>	<i>Research, Innovation & IPR</i>	<i>2</i>	<i>0</i>	<i>0</i>	<i>2</i>
		Total	19	0	3	22

Semester –III (Organic Chemistry Specialization)

<i>S. No.</i>	<i>Course Type</i>	<i>Course Title</i>	<i>L</i>	<i>T</i>	<i>P</i>	<i>C</i>
<i>1</i>	<i>DSE 1</i>	<i>Photo chemistry & Pericyclic reaction</i>	<i>4</i>	<i>0</i>	<i>1</i>	<i>5</i>

2	DSE 2	Reagents and Heterocyclic Chemistry	4	0	1	5
3	DSE 3	Chemistry of Natural Products and Retrosynthesis	4	0	1	5
4	Elective 2	Elective 2	3	0	0	<u>3</u>
5	University Core 2	Research Methodology	2	0	0	2
6	University Core 3	Research, Innovation & IPR	2	0	0	2
Total			19	0	3	22

Semester –III (Physical Chemistry Specialization)

S. No.	Course Type	Course Title	L	T	P	C
1	DSE 1	Applied Electrochemistry	4	0	1	5
2	DSE 2	Chemical Kinetics and Surface Chemistry	4	0	1	5
3	DSE 3	Molecular Spectroscopy	4	0	1	5
4	Elective 2	Elective 2	3	0	0	<u>3</u>
5	University Core 2	Research Methodology	2	0	0	2
6	University Core 3	Research, Innovation & IPR	2	0	0	2
Total			19	0	3	22

Semester –III (Analytical Chemistry Specialization)

S. No.	Course Type	Course Title	L	T	P	C
1	DSE 1	Electroanalytical methods	4	0	1	5
2	DSE 2	Quality control and quality assurance	4	0	1	5
3	DSE 3	Advanced Instrumentation methods	4	0	1	5
4	Elective 2	Elective 2	3	0	0	<u>3</u>
5	University Core 2	Research Methodology	2	0	0	2
6	University Core 3	Research, Innovation & IPR	2	0	0	2
Total			19	0	3	22

Semester -IV

S. No.	Course Type	Course Title	L	T	P	C
1	Project	Project	0	0	0	12
Total			0	0	0	12

List of Elective I

S. No		Name of the Electives	L	T	P	C
1	Elective 1	Polymer chemistry	3	0	0	3

2	<i>Elective 1</i>	<i>Industrial chemistry</i>	3	0	0	3
3	<i>Elective 1</i>	<i>Solid State chemistry</i>	3	0	0	3
4	<i>Elective 1</i>	<i>Environmental analytical chemistry</i>	3	0	0	3
List of Elective II						
S. No		Name of the Electives	L	T	P	C
1	<i>Elective 2</i>	<i>Bio-organic Chemistry</i>	3	0	0	3
2	<i>Elective 2</i>	<i>Advanced Green Chemistry</i>	3	0	0	3
3	<i>Elective 2</i>	<i>Carbon Materials</i>	3	0	0	3
4	<i>Elective 2</i>	<i>Advance Metallurgical Sciences</i>	3	0	0	3
5	<i>Elective 2</i>	<i>Industrial Biochemistry</i>	3	0	0	3
<u>M. Sc</u> One year (Organic chemistry)- Sem I						
S. No.	Course Type	Course Title	L	T	P	C
1	DSE 1	Photo chemistry & Pericyclic reaction	4	0	1	5
2	DSE 2	Reagents and Heterocyclic Chemistry	4	0	1	5
3	DSE 3	Chemistry of Natural Products and Retrosynthesis	4	0	1	5
4	<i>Elective 1</i>	Elective-1	3	0	0	3
5	<i>Elective-1</i>	Elective 2	3	0	0	3
6	<i>University Core I</i>	Professional Communication	1	0	1	2
		TOTAL	19	0	4	23
<u>M. Sc.</u> One year (Inorganic chemistry) Sem I						
S. No.	Course Type	Course Title	L	T	P	C
1	DSE 1	Organometallic Chemistry	4	0	1	5
2	DSE 2	Spectroscopic techniques in Inorganic Chemistry	4	0	1	5
3	DSE 3	Bio-Inorganic Chemistry	4	0	1	5
4	<i>Elective 1</i>	Elective-1	3	0	0	3
5	<i>Elective-1</i>	Elective 2	3	0	0	3
6	<i>University Core I</i>	Professional Communication	1	0	1	2
		TOTAL	19	0	4	23
<u>M. Sc</u> One year (Physical Chemistry) - Sem I						
S.No.	Course Type	Course Title	L	T	P	C

1	DSE 1	Applied Electrochemistry	4	0	1	5
2	DSE 2	Chemical Kinetics and Surface Chemistry	4	0	1	5
3	DSE 3	Molecular Spectroscopy	4	0	1	5
4	Elective 1	Elective-1	3	0	0	3
5	Elective-1	Elective 2	3	0	0	3
6	University Core 1	Professional Communication	1	0	1	2
		TOTAL	19	0	4	23

M. Sc One year (Analytical chemistry)- Sem I

S. No.	Course Type	Course Title	L	T	P	C
1	DSE 1	Electroanalytical methods	4	0	1	5
2	DSE 2	Quality control and quality assurance	4	0	1	5
3	DSE 3	Advanced Instrumentation methods	4	0	1	5
4	Elective 1	Elective-1	3	0	0	3
5	Elective-1	Elective 2	3	0	0	3
6	University Core 1	Professional Communication	1	0	1	2
		TOTAL	19	0	4	23

Semester -II

S. No.	Course Code	Course Title	L	T	P	C
1	Project	Project	0	0	0	14
2	University Core 2	Research Methodology	2	0	0	2
3	University Core 3	Research, Innovation & IPR	1	0	0	1
		Total	3	0	0	17

List of Elective I

S. No		Name of the Electives	L	T	P	C
1	Elective 1	Polymer chemistry	3	0	0	3
2	Elective 1	Industrial chemistry	3	0	0	3
3	Elective 1	Solid State chemistry	3	0	0	3
4	Elective 1	Environmental analytical chemistry	3	0	0	3

<i>List of Elective II</i>							
<i>S. No</i>		<i>Name of the Electives</i>					
			<i>L</i>	<i>T</i>	<i>P</i>	<i>C</i>	
<i>1</i>	<i>Elective 2</i>	<i>Bio-organic Chemistry</i>	<i>3</i>	<i>0</i>	<i>0</i>	<i>3</i>	
<i>2</i>	<i>Elective 2</i>	<i>Advanced Green Chemistry</i>	<i>3</i>	<i>0</i>	<i>0</i>	<i>3</i>	
<i>3</i>	<i>Elective 2</i>	<i>Carbon Materials</i>	<i>3</i>	<i>0</i>	<i>0</i>	<i>3</i>	
<i>4</i>	<i>Elective 2</i>	<i>Advance Metallurgical Sciences</i>	<i>3</i>	<i>0</i>	<i>0</i>	<i>3</i>	
<i>1</i>	<i>Elective 2</i>	<i>Industrial Biochemistry</i>	<i>3</i>	<i>0</i>	<i>0</i>	<i>3</i>	