

**School of Basic Sciences: BSc (Hons. with Research)
Chemistry with Specialisation in Synthetic Chemistry**

Year 1							
Semester-I							
S. No.	Category	Name of the Course					
			L	T	P	S	C
1	Core	Fundamental of Chemistry I	3	1	0	0	4
2	Core	Atomic Structure and Chemical Bonding	3	0	1	0	4
3	AEC	English Proficiency I	0	0	2	0	2
4	VAC	IT Tools and Data Analytics	0	0	2	0	2
5	MDC-1	Foundation of Programming	2	0	2	0	4
6	GE	Minor / Interdisciplinary Elective I	-	-	-	-	4
Total Credits							20
Semester-II							
S. No.	Category	Name of the Course					
			L	T	P	S	C
1	Core	Fundamental of Chemistry II	3	0	1	0	4
2	Core	Halogen and Oxygen Containing Functional Groups	3	0	1	0	4
3	Core	Chemistry of Group Elements	3	0	1	0	4
4	AEC	English Proficiency II	-	-	-	0	2
5	VAC	Choose From the Basket	-	-	-	0	2
6	GE	Minor / Interdisciplinary Elective II	-	-	-	0	4
Total Credits							20
Year 2							
Semester-III							
S. No.	Category	Name of the Course					
			L	T	P	S	C
1	Core	Physical and Biophysical Chemistry-I	3	0	1	0	4
2	Core	Nitrogen Functional Groups and Heterocyclic Compounds	3	0	1	0	4
3	Core	Co-ordination Chemistry	3	0	1	0	4

4	AEC	Today's Science, Tomorrow's World I	2	0	0	0	2
5	SEC	Statistical Computing with R	1	0	2	0	3
6	Internship	Social Internship	-	-	-	0	2
7	GE	Minor / Interdisciplinary Elective III	-	-	-	0	4
Total Credits							23
Semester-IV							
S. No.	Category	Name of the Course					
			L	T	P	S	C
1	Core	Bio-organic and Medicinal Chemistry	3	0	1	1	5
2	Core	Basics of Nanoscience and Nanotechnology	3	0	0	0	3
3	Core	Physical and Biophysical Chemistry-II	3	0	1	0	4
4	AEC	Today's Science, Tomorrow's World II	2	0	0	0	2
5	SEC	Choose From the Basket	-	-	-	0	3
6	MDC-2	Choose From the Basket	-	-	-	0	2
7	GE	Minor / Interdisciplinary Elective IV	-	-	-	0	4
Total Credits							23
Year 3							
Semester-V							
S. No.	Category	Name of the Course					
			L	T	P	S	C
1	Core	Quantum Chemistry and Spectroscopy	3	0	1	0	4
2	Core	Organometallic Chemistry	3	0	1	0	4
3	Elective	Specialization Elective 1	3	1	0	0	4
4	GE	Minor / Interdisciplinary Elective V	-	-	-	0	4
5	SEC	Choose From the Basket	-	-	-	0	3
6	VAC	Choose From the Basket	-	-	-	0	2
7	Internship	Academic/Research/Industry	-	-	-	-	2
Total Credits							23

Semester-VI							
S. No.	Category	Name of the Course					
			L	T	P	S	C
1	Core	Organic Spectroscopy	3	0	1	0	4
2	Elective	Specialization Elective -2	3	1	0	0	4
3	Elective	Specialised Elective-3	-	-	-	0	4
4	Elective	Specialised Elective-4	-	-	-	0	4
5	GE	Minor / Interdisciplinary Elective VI	-	-	-	0	4
6	MDC-3	Choose From the Basket	-	-	-	0	3
Total Credits							23
Year 4							
Semester-VII							
S. No.	Category	Name of the Course					
			L	T	P	S	C
1	Core	Advanced Analytical Chemistry: Principles, Techniques, and Applications	3	0	1	0	4
2	Elective	Specialised Elective-5	-	-	-	0	4
3	Elective	Specialised Elective-6	-	-	-	0	4
4	GE	Minor / Interdisciplinary Elective VII	-	-	-	0	4
5	GE	Minor / Interdisciplinary Elective VIII	-	-	-	0	4
Total Credits							20
Semester-VIII							
S. No.	Category	Name of the Course					
			L	T	P	S	C
1	Project	Dissertation					12
Total Credits							12
Electives							
S. No.	Category	Name of the Course					
			L	T	P	S	C
1	Elective 1	Green Chemistry	3	1	0	0	4
2		Catalysis in Synthesis	3	0	1	0	4
3		Industrial Chemistry	3	1	0	0	4

4	Elective 2	Solid State chemistry	3	1	0	0	4
5	Elective 3	Analytical Methods in Chemistry	3	0	1	0	4
6		Organocatalysis and Biocatalysis	3	0	1	0	4
7	Elective 4	Principles of Reaction Mechanisms and Stereochemistry	3	0	1	0	4
8		Supramolecular Chemistry	3	0	1	0	4
9	Elective 5	Retrosynthetic Analysis	3	0	1	0	4
10		Synthesis Strategies of Complex Organic Molecules	3	1	0	0	4
11	Elective 6	Natural Products and Synthesis	3	0	1	0	4
12		Medicinal Chemistry and Drug Design	3	1	0	0	4

Multidisciplinary Courses (MDC)

S. No.	Category	Name of the Course	L	T	P	C
1	MDC-1	Foundation of Programming	2	0	2	4
2	MDC-2	Indian legal systems for sciences	2	0	0	2
3		Stock exchange	2	0	0	2
4	MDC-2	Machine learning	3	0	0	3
5	MDC-3	Environmental Toxicology and Society	3	0	0	3
6		Research Methodology	3	0	0	3

Value added Courses (VAC)

S. No.	Category	Name of the Course	L	T	P	C
1.	VAC-1	IT Tools and Data Analytics	0	0	2	2
2.	VAC-1	Introduction of Value Based Education	2	-	-	2
3	VAC-2	Health and Nutrition	2	-	-	2
4	VAC-2	Art of Happiness	2	-	-	2
5	VAC-3	Vedic Mathematics	1	-	1	2
6	VAC-3	Digital Marketing	2	-	-	2

Skill Enhancement Courses (SEC)

S. No.	Category	Name of the Course	L	T	P	C
1.	SEC-1	Statistics with R	1	0	2	3
2.	SEC-1	Electronic Product Testing	2	0	1	3

3.	SEC-2	Introduction to Artificial Intelligence	2	0	1	3
4.	SEC-2	Cyber Sphere & Security Global Concern	3	0	0	3
5.	SEC-3	Testing of Cosmetics and Hygienic Products	2	0	1	3
6.	SEC-3	Innovation and Entrepreneurship	3	0	0	3
Ability Enhancement Courses (AEC)						
S. No.	Category	Name of the Course	L	T	P	C
1.	AEC-1	English Proficiency I	0	0	2	2
2.	AEC-2	English Proficiency II	0	0	2	2
3.	AEC-3	Today's Science, Tomorrow's World I	2	0	0	2
4.	AEC-4	Today's Science, Tomorrow's World II	2	0	0	2