

## Course Structure

### NOTE ON COURSE STRUCTURE:

- The institute offers several courses under open electives and students have a choice to opt for those courses with the same credit (as per the following course structure) at the same level. For example, one course has been suggested in the course structure for the Minor & Multidisciplinary courses, however, students can opt for other courses of their choice from available open electives from other department also.
- Students who take enough designated courses as per UGC guidelines in a discipline other than their major will qualify for a "minor" in that discipline.
- Students will get a B.Sc. Chemistry (Honors) or B.Sc. Chemistry (Honors with Research) after completing the 4<sup>th</sup> year if required eligibility is fulfilled.

### FIRST (1<sup>st</sup>) YEAR

Semester	Course Category	Course Code	Course Name	L	T	P	Credit
<b>FIRST SEMESTER</b>							
	Major	CH121	Basic Chemistry-I	3	0	0	3
	Minor	PH109	Physics I	4	0	0	4
	Multidisciplinary	ED103	Statistical Method-I	3	0	0	3
	Skill Enhancement	CH122	Laboratory Techniques for Chemists	1	0	2	3
	Ability Enhancement	MT132	Communication Skill - I	2	0	0	1.5
	Value Added	MC 101/4	NCC/NSS/PT-Games/Cr Arts	0	0	2	1
	Major	CH123	Basic Chemistry Lab-I	0	0	4	2
	Minor	PH110	Physics Lab	0	0	4	2
	Multidisciplinary	ED104	Statistical Method-I Lab	0	0	3	1.5
<b>Total Credit in First Semester</b>							<b>21</b>
<b>SECOND SEMESTER</b>							
	Major	CH124	Basic Chemistry-II	3	0	0	3
	Minor	MA108R1	Mathematics-III	5	1	0	6
	Multidisciplinary	BE210	Thermodynamics of Chemical & Biological Systems	3	0	0	3
	Skill Enhancement	CH125	Software Skill in Chemistry	1	0	2	3
	Ability Enhancement	CE101	Env. Science	2	0	0	2
	Value Added	MC 101/4	NCC/NSS/PT-Games/Cr Arts	0	0	2	1
	Major	CH126	Basic Chemistry Lab-II	0	0	4	2
	Vocational Summer Internship	CH127	Chemical Analysis & Instrumentation	1	0	3	4
<b>Total Credit in the Second Semester</b>							<b>24</b>
<b>Total Credit in First Year 45 (Certificate only for Taking Exit)</b>							

**SECOND (2<sup>nd</sup>) YEAR**

Semester	Course Category	Course Code	Course Name	L	T	P	Credit
<b>THIRD SEMESTER</b>							
	Major	CH221	Basic Chemistry-III	3	0	0	3
	Major	CH222	Basic Chemistry-IV	3	0	0	3
	Minor	ED107	Probability-I	3	1	0	4
	Multidisciplinary	BE205	Basics of Bioinformatics	3	0	0	3
	Skill Enhancement	CL217	Chemical Process Calculations	2	1	0	3
	Ability Enhancement	MT132	Communication Skill - II	2	0	0	1.5
	Value Added	MC 101/4	NCC/NSS/PT-Games/Cr Arts	0	0	2	1
	Major	CH223	Basic Chemistry Lab-III	0	0	4	2
	Major	CH224	Basic Chemistry Lab-IV	0	0	4	2
<b>Total Credit in Third Semester</b>							<b>22.5</b>
<b>FOURTH SEMESTER</b>							
	Major	CH225	Basic Chemistry-V	3	0	0	3
	Major	CH226	Basic Chemistry-VI	3	0	0	3
	Minor	MA207R1	Mathematics IV	5	1	0	6
	Ability Enhancement	MT417/MT418	Foreign-Language French/German	3	0	0	3
	Value Added	MC 101/4	NCC/NSS/PT-Games/Cr Arts	0	0	2	1
	Major	CH227	Basic Chemistry Lab-V	0	0	4	2
	Major	CH228	Basic Chemistry Lab-VI	0	0	4	2
<b>Total Credit in Forth Semester</b>							<b>20</b>
<b>Total Credit in Second Year: 42.5 (Diploma for Exit Students with 87.5 credit in 2 years)</b>							

**THIRD (3<sup>rd</sup>) YEAR**

Semester	Course Category	Course Code	Course Name	L	T	P	Credit
<b>FIFTH SEMESTER</b>							
	Major	CH331	Physical Chemistry-I	3	1	0	4
	Major	CH332	Organic Chemistry-I	3	1	0	4
	Major	CH333	Inorganic Chemistry-I	3	1	0	4
	Minor		Open Elective	3	0	0	3
	Value Added	MT131	Understanding Harmony	3	0	0	3
	Major	CH334	Inorganic Chemistry Lab-I	0	0	4	2
<b>Total Credit in FIFTH Semester</b>							<b>20</b>
<b>SIXTH SEMESTER</b>							
	Major	CH335	Physical Chemistry-II	3	1	0	4
	Major	CH336	Organic Chemistry-II	3	1	0	4
	Major	CH337	Inorganic Chemistry-II	3	1	0	4
	Minor		Open Elective	3	0	0	3
	Major	CH338	Physical Chemistry Lab-I	0	0	4	2
	Major	CH339	Organic Chemistry Lab-I	0	0	4	2
	Summer Internship	CH340	Summer Internship (Ins/Ind)				2
<b>Total Credit in the SIXTH Semester</b>							<b>21</b>
<b>Total Credit in Third Year: 41 (For Exit Students opting B.Sc. Chemistry (Major): Total Credit= 87.5+41= 128.5)</b>							

**FOURTH (4<sup>TH</sup>)-YEAR**

Semester	Course Category	Course Code	Course Name	L	T	P	Credit
<b>SEVENTH (7<sup>TH</sup>) SEMESTER</b>							
	Major	CH421	Advanced Physical Chemistry-I	3	0	0	3
	Major	CH422	Advanced Organic Chemistry-I	3	0	0	3
	Major	CH423	Advanced Inorganic Chemistry-I	3	0	0	3
	Major	CH424	Theoretical and Computational Lab	0	0	4	2
	Minor	ED211	Linear Statistical Models and Regression Analysis	3	0	0	3
	Value added	MT204	Constitution of India	2	0	0	0
	Minor	ED212	Linear Statistical Models and Regression Analysis Lab	0	0	2	1
	®Research Dissertation	CH425	Research Thesis Dissertation-I				6
<b>Total Credit in the 7<sup>th</sup> Semester</b>							<b>21</b>
<b>EIGHTH (8<sup>TH</sup>) SEMESTER</b>							
	Major	CH426	Advanced Physical Chemistry-II	3	1	0	4
	Major	CH427	Advanced Organic Chemistry-II	3	1	0	4
	Major	CH428	Advanced Inorganic Chemistry-II	3	1	0	4
	Major	CH429	Separation & Purification Lab	0	0	2	2
	®Research Dissertation	CH430	Research Thesis Dissertation-II				6
<b>Total Credit in the 8<sup>th</sup> Semester</b>							<b>20</b>
<b>Total Credit= 128.5 + 41 = 169.5</b>							

®NOTE: Honors students not undertaking research will do 12 Credit Courses in place of a research dissertation, and courses can be taken as per Annexure-I.

**ANNEXURE-I for B.Sc. (Hons.) Students:**

Semesters	Code No.	Name of the Courses	Prerequisites	L	T	P	C	
SEM-VII	4	CH431	Analytical Chemistry	Intermediate Chemistry	3	1	0	4
		CH432	Analytical Chemistry Lab	Intermediate Chemistry	0	0	4	2
SEM-VIII	4	CH433	Polymer Chemistry	Intermediate Chemistry	3	1	0	4
		CH434	Polymer Chemistry Lab	Intermediate Chemistry	0	0	4	2

**CREDIT DISTRIBUTION in 4 Yrs. B.Sc. Chemistry (Honors) or B.Sc. Chemistry (Honors with Research) with Multiple Entry-Exit Provision:**

	Major	Minor	AEC	SEC	Value Added	Summer Internship	Research Dissertation/ Theory Papers	Multidisciplinary	TOTAL
SEM -1	5	6	1.5		3	1	0	4.5	21
SEM -2	5	6	2		3	1	4	3	24
SEM -3	10	4	1.5		3	1	0	3	22.5
SEM -4	10	6	3		0	1	0	0	20
SEM -5	14	3	0		0	3	0	0	20
SEM -6	16	3	0		0	0	2	0	21
SEM -7	11	4	0		0	0	0	6	21
SEM -8	14	0	0		0	0	0	6	20
UG 3 YEA R	60	28	8		9	7	6	10.5	128.5
UG 4 YEA R	85	32	8		9	7	6	12	169.5