



SCHOOL OF ENGINEERING AND SCIENCES

B.Sc. (Hons) Chemistry

2023-27 Batch

Category Wise Credit Distribution

Course Sub-category	Subcategory Credits	Category Credits	Learning hours
Ability Enhancement Courses (AEC)		8	240
University AEC	4		
School AEC	4		
Value Added Courses (VAC)		8	240
University VAC	4		
School VAC	4		
Skill Enhancement Courses (SEC)		15	450
School SEC	7		
Department SEC	8		
SEC Elective	0		
Foundation & Interdisciplinary Courses (FIC)		17	510
School FIC	17		
Department FIC			
Core + Core Elective includes Specialization (CC)		80	2400
Core	60		
Core Elective (Inc Specialization)	20		
Minor (MC) + Open Elective (OE)		15	450
Research / Design / Internship/ Project (RDIP)		17	510
Internship / Design Project / Startup / NGO	5		
Internship / Research / Thesis	12		
Total			4800

Semester Wise Course Credit Distribution Under Various Categories

Semester										
Category	S1	S2	S3	S4	S5	S6	S7	S8	Total	%age
Ability Enhancement Courses (AEC)	1(2)	1(2)	1(2)	1(2)					8	5%
Value Added Courses (UG Common) (VAC)	2(2)	1(2)	4*	4*	4*	4			8	5%
Skill Enhancement Courses (SEC)	1(3)	1(2)	1(2)	1(2)	1(3)	1(3)			15	9.4%
Foundation & Interdisciplinary Courses (FIC)	11	2(3)							17	10.6%
Major Core + Specialization (CC)		2(4)	3(4)	3(4)	4(4)	4(4)	3(4)		80	50%
Minor (MC) + Open Elective (OE)			1(3)	1(3)	1(3)	1(3)	1(3)		15	9.4%
Research / Design / Industrial Practice / Project (RDIP)							5	12	17	10%
Grand Total	18	20	19	23	22	26	20	12	160	100%

B. Sc. - Chemistry

Semester-1							
Category	Sub-Category	Course Title	L	T/D	P/Pr	Credits	Learning Hours
AEC	University AEC	Art of Listening, Speaking and Reading Skills	1	0	1	2	60
VAC	University VAC	Environmental Science	2	0	0	2	60
SEC	School SEC	Analytical Reasoning and Aptitude Skills	1	1	1	3	90
FIC	School FIC	Chemical Basis of Life	3	0	0	3	90
FIC	School FIC	Mathematics for the Physical World	3	0	0	3	90
FIC	School FIC	Fundamentals of Computing	2	0	1	3	90
FIC	School FIC	Emerging Technologies	2	0	0	2	60
Semester Total						18	540

Semester-2							
Category	Sub-Category	Course Title	L	T/D	P/Pr	Credits	Learning Hours
AEC	University AEC	Effective Writing and Presentation Skills	1	0	1	2	60
VAC	University VAC	Universal Human Values and Ethics	2	0	0	2	60
SEC	School SEC	Entrepreneurial Mindset	0	0	2	2	60
FIC	School FIC	Principles of Management	3	0	0	3	90
FIC	School FIC	Psychology for Everyday Living	3	0	0	3	90
CC	Core	Inorganic Chemistry I: Concepts in Inorganic Chemistry	3	0	1	4	120
CC	Core	Physical Chemistry I: Atomic structure and states of matter	3	0	1	4	120
Semester Total						20	600

Semester-3							
Category	Sub-Category	Course Title	L	T/D	P/Pr	Credits	Learning Hours
AEC	School AEC	Problem Solving Skills	1	0	1	2	60
VAC	School VAC	Co-Curricular Activities	0	0	2	2*	0
VAC	School VAC	Community Service and Social Responsibility	1	0	1	2*	0
SEC	Department/ School SEC	Digital Literacy	1	0	1	2	60
CC	Department	Fundamentals of Organic Chemistry	3	0	1	4	120
CC	Department	Inorganic Chemistry II: Chemistry of Elements	3	0	1	4	120
CC	Department	Physical Chemistry II: Chemical thermodynamics and chemical kinetics	3	0	1	4	120
OE/Minor	OE/Minor					3	90
Semester Total						19	570

Semester-4							
Category	Sub-Category	Course Title	L	T/D	P/Pr	Credits	Learning Hours
AEC	School AEC	Creativity and Critical thinking Skills	1	0	1	2	60
VAC	School VAC	Co-Curricular Activities	0	0	2	2*	0
VAC	School VAC	Community Service and Social Responsibility	2	0	0	2*	0
SEC	Department/ School SEC	Leadership for Professionals	2	0	0	2	60
CC	Department	Basic Concepts in Analytical Chemistry	3	1	0	4	120
CC	Department	Inorganic III: Transition Metal & Bioinorganic Chemistry	3	0	1	4	120
CC	Department	Chemistry of Functional groups in Organic Molecules: Structure and Reactivity	3	0	1	4	120
CC	Department	Physical Chemistry III: Chemistry of solutions	3	0	1	4	120
OE/Minor	OE/Minor					3	90
Semester Total						23	690

Semester-5							
Category	Sub-Category	Course Title	L	T/D	P/Pr	Credits	Learning Hours
VAC	School VAC	Co-Curricular Activities	0	0	2	2*	0
VAC	School VAC	Community Service and Social Responsibility	2	0	0	2*	0
SEC	SEC Elective	Career Skills-1				3	90
CC	Department	Aromatic compounds and Heterocycles	3	0	1	4	120
CC	Department	Physical Chemistry IV: Chemistry at the Interfaces	4	0	0	4	120
CC	Department	Principles of Instrumental Analysis	3	0	1	4	120
CC	Department	The Quantum World: An Introduction to Quantum Chemistry	4	0	0	4	120
OE/Minor	OE/Minor					3	90
Semester Total						22	660

Semester-6							
Category	Sub-Category	Course Title	L	T/D	P/Pr	Credits	Learning Hours
VAC	School VAC	Co-Curricular Activities	0	0	2	2	60
VAC	School VAC	Community Service and Social Responsibility	2	0	0	2	60
SEC	SEC Elective	Career Skills-2				3	90
CC	Department	Introduction to Modern Organic Synthesis	3	1	0	4	120
CC	Department	Supervised Learning	0	0	4	4	120
CE/SE	Department	Polymer Materials	4	0	0	4	120
CE/SE	Department	Structural Methods and Analysis	3	0	1	4	120
OE/Minor	OE/Minor					3	90
Semester Total						26	780

Semester-7							
Category	Sub-Category	Course Title	L	T/D	P/Pr	Credits	Learning Hours
CE/SE	Department	Selected Topics in Organic Synthesis	4	0	0	4	120
CE/SE	Department	Chemistry on Computers: Molecular Modelling	4	0	0	4	120
CE/SE	Department	Chemistry in Life and Medicine	4	0	0	4	120
RDIP	Department	Project 1	0	0	5	5	150
OE/Minor	OE/Minor					3	90
Semester Total						20	600

Semester-8							
Category	Sub-Category	Course Title	L	T/D	P/Pr	Credits	Learning Hours
RDIP	Department	Project 2 - Thesis	0	0	12	12	360
Semester Total						12	360

Core Electives:

1. Structural Methods and Analysis
2. Polymer Materials
3. Selected Topics in Organic Synthesis
4. Chemistry on Computers: Molecular Modelling
5. Chemistry in Life and Medicine

Minor Program - Chemical Science

1. Principles of Chemistry
2. Fundamentals of Nanoscience
3. Organic Chemistry: Synthesis and Characterization
4. Chemical Thermodynamics
5. Chemistry of Renewable Energy
6. Environmental Chemistry
7. Quantum Chemistry
8. Analytical Techniques in Pharmaceutical Industry