



Curriculum 5-yr Integrated MSc Chemistry - 2022

Course Code	Course Title	L T P	Cr	ES	Course Code	Course Title	L T P	Cr	ES
SEMESTER 1					SEMESTER 2				
	Mathematics -I	3 1 0	4			Mathematics – II	3 1 0	4	
	Introduction to Biology	2 1 0	3			Introductory Cellular and Molecular Biology	2 1 0	3	
	Basics of Mechanics	3 1 0	4			Electricity and Magnetism - I	3 1 0	4	
	General Chemistry	3 1 0	4			Principles of Physical Chemistry	3 1 0	4	
	Introduction to Programming - Python	3 0 0	3			Physics Lab - I	0 0 2	1	
	Communicative English	2 0 2	3			Chemistry Lab - I	0 0 2	1	
	Scientific Programming Lab - I	0 0 2	1			Professional Communication	1 0 2	2	
	Cultural Education - I	2 0 0	2			Cultural Education - II	2 0 0	2	
	TOTAL		24			TOTAL		21	
SEMESTER 3					SEMESTER 4				
	Physical Organic Chemistry	3 1 0	4			Basic Electronics	3 1 0	4	
	Waves & optics	3 1 0	4			Principles of Inorganic Chemistry (common to physics)	3 1 0	4	
	Mathematics –III	3 1 0	4			Principles of Organic Chemistry	3 1 0	4	
	Soft skills-I	2 0 0	2			Analytical Chemistry	3 1 0	4	
	Environmental Science and Sustainability	3 1 0	4			Soft Skills-II	2 0 0	2	
	Chemistry Lab-II	0 0 2	1			Inorganic Chemistry Lab - 1	0 0 5	2	
	Physics Lab – II	0 0 2	1			Organic Chemistry Lab -1	0 0 5	2	
	Scientific Programming Lab II	1 0 2	2						
	TOTAL		22			TOTAL		22	
SEMESTER 5					SEMESTER 6				
	Chemistry of Main Group elements	3 1 0	4			Molecular Symmetry and Group Theory	2 1 0	3	
	Equilibria, Dilute solutions, Surface and Photochemistry	3 1 0	4			Organic Synthesis – II	3 1 0	4	
	Quantum Chemistry	2 1 0	3			Coordination Chemistry	3 1 0	4	
	Organic Synthesis – I	3 1 0	4			Statistical and Irreversible Thermodynamics	2 1 0	3	
	Open Elective/Live in Lab	3 0 0	3			Core Elective - II	3 0 0	3	
	Physical Chemistry Lab – Instrumental	0 0 5	2			Professional Elective – II	3 0 0	3	
	Core Elective – I	3 0 0	3						
	Professional elective - I	3 0 0	3			Advanced organic Chemistry Lab	0 0 6	3	
	TOTAL		26			TOTAL		23	
					TOTAL (for Exit-option students)		138		
SEMESTER 7					SEMESTER 8				
	Molecular Spectroscopy	3 1 0	4			Structural Methods and Analysis	3 1 0	4	
	Solid State Chemistry	2 1 0	3			Molecular Modelling and Simulation	2 0 2	3	
	Bio-organic Chemistry	2 1 0	3			Electrochemistry	3 1 0	4	
	Organometallic Chemistry	3 1 0	4			Bioinorganic Chemistry	2 1 0	3	
	Pericyclic reactions, Photochemistry, and Supramolecular chemistry	3 1 0	4			Advanced Physical Chemistry Lab	0 0 6	3	
	Core Elective - III	3 0 0	3			Core Elective –IV	3 0 0	3	
	Advanced Inorganic Chemistry Lab	0 0 6	3			Core Elective –V	3 0 0	3	
						Research Methodology	2 0 0	2	
	TOTAL		24			TOTAL	25		

SEMESTER 9				SEMESTER 10			
	Dissertation - Phase 1		10		Dissertation - Phase 2		10
	Comprehensive Viva voce		2				
	TOTAL		12		TOTAL		10
				TOTAL CREDITS = 209			

Electives

Code	Chemistry ELECTIVES	L	T	P	Cr	Code	Professional Electives	L	T	P	Cr
	POOL A (Chemical Biology)										
	Chemical Biology	3	0	0	3	18CSA209	Data Structures and Algorithms	3	0	0	3
	Medicinal Chemistry	3	0	0	3	18CSA308	Machine Learning I	3	0	0	3
	Biosensors	3	0	0	3	19CHE215	Statistical Analysis of Process Data	3	0	0	3
	Nanobiotechnology	3	0	0	3	18CSC449	IoT (workshop based course)	3	0	0	3
	Biomaterials	3	0	0	3	18CSC202	Foundations Of Data science	2	0	2	3
	Bioinformatics	3	0	0	3	19CHE44 5	Safety and Hazard Management in Chemical Industries	3	0	0	3
	Bioelectrochemistry	3	0	0	3						
	Biomicrofluidics	3	0	0	3						
	POOL B (Applied Electrochemistry)										
	Electroanalytical Techniques	3	0	0	3						
	Photoelectrochemistry	3	0	0	3						
	Energy storage systems	3	0	0	3	18OEL297	History and Philosophy of Science	3	0	0	3
	Industrial Electrochemistry	3	0	0	3	18OEL298	EU History of Science and Technology	3	0	0	3
	Chemistry of Nanomaterials	3	0	0	3						
	Electroorganic Chemistry	3	0	0	3						
	Corrosion Science	3	0	0	3						
	Sustainable chemical techniques/ Sustainable and Green Chemical Sciences	3	0	0	3						

Open Electives

Course Code	Course Title	L – T – P	Cr.	ES
180EL231	Advertising	3 0 0	3	J
180EL232	Basic Statistics	3 0 0	3	J
180EL233	Citizen Journalism	3 0 0	3	J
180EL234	Creative Writing for Beginners	3 0 0	3	J
180EL235	Desktop Support and Services	3 0 0	3	J
180EL236	Development Journalism	3 0 0	3	J
180EL237	Digital Photography	3 0 0	3	J
180EL238	Emotional Intelligence	3 0 0	3	J
180EL239	Essence of Spiritual Literature	3 0 0	3	J
180EL240	Film Theory	3 0 0	3	J
180EL241	Fundamentals of Network Administration	3 0 0	3	J
180EL242	Gender Studies	3 0 0	3	J
180EL243	Glimpses of Indian Economy and Polity	3 0 0	3	J
180EL244	Graphics and Web-designing Tools	3 0 0	3	J
180EL245	Green Marketing	3 0 0	3	J
180EL246	Healthcare and Technology	3 0 0	3	J
180EL247	History of English Literature	3 0 0	3	J
180EL248	Indian Writing in English	3 0 0	3	J
180EL249	Industrial Relations and Labour Welfare	3 0 0	3	J
180EL250	Introduction to Ancient Indian Yogic and Vedic Wisdom	3 0 0	3	J
180EL251	Introduction to Computer Hardware	3 0 0	3	J
180EL252	Introduction to Event Management	3 0 0	3	J
180EL253	Introduction to Media	3 0 0	3	J
180EL254	Introduction to Right to Information Act	3 0 0	3	J
180EL255	Introduction to Translation	3 0 0	3	J
180EL256	Linguistic Abilities	3 0 0	3	J
180EL257	Literary Criticism and Theory	3 0 0	3	J
180EL258	Macro Economics	3 0 0	3	J
180EL259	Managing Failure	3 0 0	3	J
180EL260	Media Management	3 0 0	3	J
180EL261	Micro Economics	3 0 0	3	J
180EL262	Micro Finance, Small Group Management and Cooperatives	3 0 0	3	J
180EL263	Negotiation and Counselling	3 0 0	3	J
180EL264	New Literatures	3 0 0	3	J
180EL265	Non-Profit Organization	3 0 0	3	J
180EL266	Personal Effectiveness	3 0 0	3	J
180EL267	Perspectives in Astrophysics and Cosmology	3 0 0	3	J
180EL268	Principles of Marketing	3 0 0	3	J
180EL269	Principles of Public Relations	3 0 0	3	J
180EL270	Science, Society and Culture	3 0 0	3	J
180EL271	Statistical Analysis	3 0 0	3	J
180EL272	Teamwork and Collaboration	3 0 0	3	J
180EL273	The Message of Bhagwad Gita	3 0 0	3	J
180EL274	Understanding Travel and Tourism	3 0 0	3	J
180EL275	Videography	3 0 0	3	J
180EL276	Vistas of English Literature	3 0 0	3	J
180EL277	Web-Designing Techniques	3 0 0	3	J
180EL278	Organic Farming	3 0 0	3	J
180EL279	Basic Legal Awareness on Protection of Women and Rights	3 0 0	3	J
180EL280	Ritual Performances of Kerala	3 0 0	3	J
180EL281	Documenting Social Issues	3 0 0	3	J
180EL282	Fabrication of Advanced Solar Cell	3 0 0	3	J
180EL283	Basic Concepts of X-ray Diffraction	3 0 0	3	J
180EL284	Introduction to FORTRAN and GNUPLOT	3 0 0	3	J
180EL285	Introduction to Porous Materials	3 0 0	3	J
180EL286	Forensic Science	3 0 0	3	J
180EL287	Introduction to solar Physics	3 0 0	3	J
180EL288	Recycling Recovery and Treatment Methods for Wastes	3 0 0	3	J
180EL289	Acting and Dramatic Presentation	2 0 2	3	J
180EL290	Computerized Accounting	2 0 2	3	J
180EL291	Kerala Mural Art and Painting	2 0 2	3	J
180EL292	Painting	2 0 2	3	J
180EL293	Reporting Rural Issues	3 0 0	3	J