

**Curriculum 5-yr Integrated M Sc – Chemistry  
2018**

Course Code	Course Title	L	T	P	Cr	ES	Course Code	Course Title	L	T	P	Cr	ES
<b>SEMESTER 1</b>							<b>SEMESTER 2</b>						
18ENG101	Communicative English	2	0	2	3		18ENG121	Professional Communication	1	0	2	2	
	Language Paper I	1	0	2	2			Language Paper II	1	0	2	2	
18CHY101	General Chemistry I	3	1	0	4		18CHY111	General Chemistry II	3	1	0	4	
18CSA100	Problem Solving and Computer Programming	3	0	0	3		18CSA116	Advanced Computer Programming	3	0	0	3	
18MAT105	Introduction to Calculus and Matrix Theory	3	1	0	4		18MAT114	Ordinary Differential Equations and Vector Calculus	3	1	0	4	
18PHY103	Mechanics	3	1	0	4		18PHY114	Electricity and Magnetism	3	1	0	4	
18CSA180	Problem Solving and Computer Programming Lab.	0	0	2	1		18CHY184	Inorganic Quantitative Lab. – Volumetric Analysis	0	0	2	1	
18PHY181	Physics Lab. I	0	0	2	1		18CSA181	Advanced Computer Programming Lab.	0	0	2	1	
18CUL101	Cultural Education I	2	0	0	2		18PHY182	Physics Lab. II	0	0	2	1	
	<b>TOTAL</b>				<b>24</b>		18CUL111	Cultural Education II	2	0	0	2	
								<b>TOTAL</b>				<b>24</b>	
<b>SEMESTER 3</b>							<b>SEMESTER 4</b>						
18CHY202	Physical Chemistry I	3	1	0	4		18CHY212	Physical Chemistry II	3	1	0	4	
18CHY203	Inorganic Chemistry I	3	1	0	4		18CHY213	Organic Chemistry I	3	1	0	4	
18ENV300	Environmental Science and Sustainability	3	0	0	3		18MAT219	Integral Transforms	3	1	0	4	
18MAT207	Introduction to Probability and Statistics	3	1	0	4		18PHY214	Waves and Optics	3	1	0	4	
18PHY208	Basic Electronics	3	1	0	4			Open Elective A*	3	0	0	3	
18CHY281	Inorganic Qualitative Lab	0	0	3	1		18CHY282	Basic Organic Qualitative Lab.	0	0	3	1	
18SSK201	Life Skills I	1	0	2	2		18SSK211	Life Skills II	1	0	2	2	
18AVP201	Amrita Values Programme I	1	0	0	1		18AVP211	Amrita Values Programme II	1	0	0	1	
	<b>TOTAL</b>				<b>23</b>			<b>TOTAL</b>				<b>23</b>	
<b>SEMESTER 5</b>							<b>SEMESTER 6</b>						
18CHY301	Physical Chemistry III	3	1	0	4		18CHY312	Basics of Analytical Chemistry	3	1	0	4	
18CHY302	Inorganic Chemistry II	3	1	0	4		18CHY313	Organic Chemistry III	3	1	0	4	
18CHY303	Organic Chemistry II	3	1	0	4		18CHY314	Inorganic Chemistry III	3	1	0	4	
	Elective A	3	0	0	3		18CHY315	Basic Spectroscopic Techniques	3	1	0	4	
18CHY383	Basic Physical Chemistry Lab.	0	0	3	1			Elective B	3	0	0	3	
18CHY384	Organic Synthesis and Estimation Lab.	0	0	3	1		18CHY385	Inorganic Quantitative Lab. – Gravimetric Analysis	0	0	5	2	
18CHY390	Live-in-Lab. <sup>®</sup> / Open Elective B*	3	0	0	3		18CHY386	Physical Chemistry Lab. – Instrumental Analysis	0	0	5	2	
18SSK301	Life Skills III	1	0	2	2			<b>TOTAL</b>				<b>23</b>	
	<b>TOTAL</b>				<b>22</b>		18CHY399	Project (for Exit-option students)				<b>6</b>	
												<b>29</b>	
								<b>TOTAL (for Exit-option students)</b>				<b>145</b>	
<b>SEMESTER 7</b>							<b>SEMESTER 8</b>						
18CHY501	Quantum Chemistry	3	0	0	3		18CHY511	Chemical Thermodynamics and Equilibria	3	1	0	4	
18CHY505	Group Theory and its Applications	3	0	0	3		18CHY512	Molecular Spectroscopy	3	1	0	4	
18CHY502	Concepts in Inorganic Chemistry	3	1	0	4		18CHY513	Organic Reaction Mechanism	3	1	0	4	
18CHY503	Principles in Organic Chemistry	3	0	0	3		18CHY514	Heterocyclic and Natural Products Chemistry	3	0	0	3	
18CHY504	Coordination Chemistry	3	0	0	3		18CHY515	Organometallic Chemistry	3	0	0	3	
18CHY581	Inorganic Semi-micro Qualitative Analysis Lab.	0	0	5	2		18CHY583	Advanced Physical Chemistry Lab.	0	0	5	2	
18CHY582	Organic Quantitative Analysis Lab.	0	0	5	2		18CHY584	Inorganic Quantitative Analysis Lab.	0	0	5	2	
	<b>TOTAL</b>				<b>20</b>			<b>TOTAL</b>				<b>22</b>	
<b>SEMESTER 9</b>							<b>SEMESTER 10</b>						
18CHY601	Electrochemistry, Kinetics and surface Chemistry	3	1	0	4								
18CHY602	Synthetic Strategies and Reagents	3	1	0	4		18CHY696	Dissertation				14	
18CHY603	Solid State Chemistry and Materials Science	3	0	0	3			<b>TOTAL</b>				<b>14</b>	
18CHY604	Bioinorganic Chemistry	3	0	0	3								
	Elective	3	0	0	3								
18CHY681	Organic Qualitative Analysis Lab.	0	0	5	2								
18CHY682	Instrumental and Analytical Methods Lab.	0	0	5	2								
	<b>TOTAL</b>				<b>21</b>			<b>TOTAL</b>				<b>216</b>	
<b>ELECTIVES</b>													
<b>Electives A&amp; B</b>							<b>Electives</b>						
18CHY331	Batteries and Fuel Cells	3	0	0	3	E	18CHY631	Applied Electrochemistry	3	0	0	3	E
18CHY332	Corrosion Science	3	0	0	3	E	18CHY632	Bioanalytical Chemistry	3	0	0	3	E
18CHY333	Green Chemistry	3	0	0	3	E	18CHY633	Chemistry of Biomolecules	3	0	0	3	E
18CHY334	Industrial Catalysis	3	0	0	3	E	18CHY634	Industrial Chemistry	3	0	0	3	E
18CHY335	Introduction to Food Chemistry	3	0	0	3	E	18CHY635	Industrial Stoichiometry	3	0	0	3	E
18CHY336	Polymer Chemistry	3	0	0	3	E	18CHY636	Material Science and Nanochemistry	3	0	0	3	E
18CHY337	Surface Science and Coating Technology	3	0	0	3	E	18CHY637	Medicinal Chemistry	3	0	0	3	E
18CHY353	Forensic Science	3	0	0	3	E	18CHY638	Supramolecular Chemistry	3	0	0	3	E
							18CHY639	Nanomaterials for Biomedical Applications	3	0	0	3	E
							18CHY640	Industrial Metal Finishing Processes	3	0	0	3	E
							18CHY641	Biosensors: Fundamentals and Applications	3	0	0	3	E

						18CHY642	Computational Chemistry	3 0 0	3	E	
						18CHY643	Sustainable Chemical Science	3 0 0	3	E	
						18CHY644	Sustainable techniques in Chemical Sciences	3 0 0	3	E	
<b>LANGUAGES</b>											
		<b>Paper I</b>						<b>Paper II</b>			
	18HIN101	Hindi I	1 0 2	2	B		18HIN111	Hindi II	1 0 2	2	B
	18KAN101	Kannada I	1 0 2	2	B		18KAN111	Kannada II	1 0 2	2	B
	18MAL101	Malayalam I	1 0 2	2	B		18MAL111	Malayalam II	1 0 2	2	B
	18SAN101	Sanskrit I	1 0 2	2	B		18SAN111	Sanskrit II	1 0 2	2	B
	18TAM101	Tamil I	1 0 2	2	B		18TAM111	TAMIL II	1 0 2	2	B

\* **Two Open Elective** courses are to be taken by each student, one each at the **4th and the 5th** semesters, from the list of Open electives offered by the School.

© Students undertaking and registering for a Live-in-Lab project, can be exempted from registering for an Open Elective course in the fifth semester.