

Dr. B. R. AMBEDKAR NATIONAL INSTITUTE OF TECHNOLOGY JALANDHAR

DEPARTMENT OF CHEMISTRY

SCHEME AND SCHEDULE OF COURSES  
M Sc IN CHEMISTRY  
SEMESTER I

Course Code	Course Title	Hours /week			Credits
		L	T	P	
CY-512	Stereochemistry and Reaction Mechanism	3	1	0	4
CY-521	Thermodynamics and Chemical Kinetics	3	1	0	4
CY-532	Main Group Chemistry	3	1	0	4
CY-541	Intellectual Properties Rights	2	0	0	2
CY-542	Basic Biological Chemistry /	2	0	0	2
MA-551	Mathematics for Chemists				
CY-561	Organic Chemistry Lab	0	0	8	4
CY-571	Computational Skill , Computer Graphics & Simulation Lab	0	0	4	2
CY-599	Seminar I	0	0	0	0
<b>Total = 22 Credits</b>					

SEMESTER II

Course Code	Course Title	Hours /week			Credits
		L	T	P	
CY-511	Quantum Chemistry	3	1	0	4
CY-513	Pharmaceutical Chemistry	2	0	0	2
CY-522	Surface Chemistry, Adsorption and Catalysis	3	1	0	4
CY-531	Principles of Organic Synthesis	3	1	0	4
CY-551	Symmetry and Group Theory	3	0	0	3
CY-562	Physical Chemistry Lab	0	0	8	4
EC-636	Electronics for Chemists Lab	0	0	4	2
<b>Total = 23 Credits</b>					

CY-597	Summer Training in Research Lab/Industry (after second semester)	0	0	4	2
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SEMESTER III

Course Code	Course Title	Hours /week			Credits
		L	T	P	
CY-582	Inorganic Chemistry Lab	0	0	8	4
CY- 600	Project Phase I	0	0	4	2
CY-611	Chemistry of Transition and Inner-transition Elements	3	1	0	4
CY-621	Physical Methods of Structure Elucidation	3	1	0	4
CY-631	Analytical Principles and Instrumental Methods of Analysis	3	1	0	4
CY-642	Frontiers in Organic Chemistry	3	0	0	3
CY-6XX	Elective-I	3	0	0	3
<b>Total = 24 Credits</b>					

SEMESTER IV

Course Code	Course Title	Hours /week			Credits
		L	T	P	
CY-581	Frontiers in Physical Chemistry	3	0	0	3
CY-664	Interdisciplinary Topics in Chemistry	3	0	0	3
CY-6XX	Elective-II	3	0	0	3
CY-6XX	Elective-III	3	0	0	3
CY-600	Project Phase –II	0	0	16	8
CY-601	Seminar II	0	0	0	0
<b>Total = 20 Credits</b>					

TOTAL CREDITS= 22+23+2+24+20= 91

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**DEPARTMENT OF CHEMISTRY**

**LIST OF ELECTIVE COURSES FOR M. Sc. / Ph D CHEMISTRY STUDENTS**

Course Code	Course Title	Hours /week			Credits
		L	T	P	
CY-612	Natural Products	3	0	0	3
CY-622	Ligand Field Theory	3	0	0	3
CY-623	Polymer Chemistry	3	0	0	3
CY-632	Bioinorganic Chemistry	3	0	0	3
CY- 633	Advanced Inorganic Chemistry – I	3	0	0	3
CY – 634	Advanced Inorganic Chemistry – II	3	0	0	3
CY-641	Solid State Chemistry	3	0	0	3
CY-650	Nanochemistry	3	0	0	3
CY-651	Photochemistry	3	0	0	3
CY-652	Environmental Chemistry	3	0	0	3
CY-653	Statistical Thermodynamics	3	0	0	3
CY-662	Industrial Organic Chemistry	3	0	0	3
CY-665	Leather Chemicals	3	0	0	3
CY-671	Drug Design and Development	3	0	0	3
CY-681	Mechanistic Inorganic Chemistry	3	0	0	3
CY-691	Advanced Organic Chemistry	3	0	0	3

**LIST OF OPEN ELECTIVE COURSES FOR B. TECH STUDENTS**

Course Code	Course Title	Hours /week			Credits
		L	T	P	
CY-583	Molecular Electronic Devices	3	0	0	3
CY-623	Polymer Chemistry	3	0	0	3
CY-661	Nanomaterials, Nanoscience & Nanotechnology	3	0	0	3

**LIST OF COURSES EXCLUSIVELY FOR Ph D CHEMISTRY STUDENTS**

Course Code	Course Title	Hours /week			Credits
		L	T	P	
CY-751	Green Chemistry	3	1	0	4
CY-761	Principles of Instrumental Methods of Analysis	3	1	0	4
CY-771	Advanced Spectroscopy	3	1	0	4
CY-781	Chemistry of Materials	3	1	0	4
CY-791	Macromolecular Chemistry	3	1	0	4