Subject: Chemistry							
Year	**Semester**	**Theory Paper**	**Units**	**Practical Paper**	**Units**	**Research Project**	**Total Credits of the Year subject**
1	I	Fundamentals of Chemistry-I	1. Atomic Structure and Periodic Properties 2. Chemical Bonding-I 3. Mechanism of Organic Reactions 4. Stereochemistry of Organic Compounds 5. States of Matter-I 6. States of Matter-II	Chemical Analysis-I	1. Laboratory hazards and safety precautions 2. Inorganic exercise (Acidic radicals including combinations and interfering radicals) 3. Organic exercise 4. Physical exercise	NIL	4+2=6
	II	Fundamentals of Chemistry-II	1. Chemical Bonding-II 2. Salient Features of *s*- and *p*-Block Elements 3. Aliphatic Compounds 4. Aromatic Compounds 5. Chemical Kinetics and Catalysis 6. Thermodynamics I	Chemical Analysis-II	1. Laboratory hazards and safety precautions 2. Inorganic exercise (acid-base titrations) 3. Organic exercise 4. Physical exercise	NIL	4+2=6
2	III	General Chemistry-I	1. Chemistry of Transition Elements (First, second and third Transition Series) 2. Coordination Chemistry-I 3. Halides 4. Alcohols and Phenols	Analytical Procedures-I	1. Laboratory hazards and safety precautions 2. Inorganic mixture analysis (including basic radicals) 3. Organic exercise 4. Physical exercise	NIL	4+2=6

			5. Thermodynamics II 6. Chemical Equilibrium, Phase Equilibrium				
	IV	General Chemistry-II	1. Acids and Bases 2. Chemistry of Inner Transition Elements 3. Aldehydes and Ketones 4. Carboxylic Acids 5. Electrochemistry I 6. Electrochemistry II	Analytical Procedures-II	1. Laboratory hazards and safety precautions 2. Inorganic exercise (Redox titration) 3. Organic exercise 4. Physical exercise	NIL	4+2=6
3	V	Inorganic Chemistry	1. Metal-Ligand Bonding in Transition Metal Complexes 2. Thermodynamic and Kinetic Aspects of Coordination Compounds 3. Electronic Spectra of Transition Metal Complexes 4. Magnetic Properties of Transition Metal Complexes 5. Organometallic Chemistry 6. Some Industrially Important Inorganic Materials	Analytical Procedures -III	1. Laboratory hazards and safety precautions 2. Inorganic exercise (Synthesis) 3. Organic exercise 4. Physical exercise	Research Project (Qualifying)	4+4+2=10
		Organic Chemistry	1. Lipids and Fats 2. Reagents in Organic Synthesis				

			3. Nitrogen containing organic Compounds 4. Organometallic Compounds 5. Dyes and Paints 6. Carbohydrates and Proteins				
	VI	Physical Chemistry	1. Surface Chemistry 2. Elementary Quantum Mechanics 3. Photochemistry 4. Solutions and Colligative Properties 5. Thermodynamics III 6. Radiochemistry	Analytical Procedures -IV	1. Laboratory hazards and safety precautions 2. Physical exercise 3. Spectroscopic exercise/ Chromatographic technique 4. Inorganic exercise (Gravimetric)	Research Project (Qualifying)	4+4+2=10
		Analytical Chemistry	1. General Biochemistry 2. Data Analysis 3. Fundamentals of Nanochemistry 4. Basics of Green Chemistry 5. Analytical Techniques 6. Spectroscopy				

Subject: Chemistry							
Course	**Semester**	**Paper Title**		**Prerequisite for Paper**	**Elective for Major Subject**	**Hours per Semester**	**Total Credits of the Year subject**
Certificate in Introductory Chemistry	I	Theory-1	Fundamentals of Chemistry-I	Chemistry of 12th standard	Yes open for all	60	4
		Practical-1	Chemical Analysis-I	Chemistry of 12th standard	Yes open for all	60	2
	II	Theory-1	Fundamentals of Chemistry-II	Passed Sem-I Theory paper-1	Yes for the students with major Zoo/Bot./Physics/Math/Comp Sci/Forestry/Geo	60	4
		Practical-1	Chemical Analysis-II	Opted Sem-II Theory Paper-1	Yes for the students with major Zoo/Bot./Physics/Math/Comp Sci/Forestry/Geo	60	2
Diploma in Chemical Science	III	Theory-1	General Chemistry-I	Passed Certificate Course in Introductory Chemistry	Yes for the students with major Zoo/Bot./Physics/Math/Comp Sci/Forestry/Geo	60	4
		Practical-2	Analytical Procedures-I	Opted Sem-III Theory Paper-1	Yes for the students with major Zoo/Bot./Physics/Math/Comp Sci/Forestry/Geo	60	2
	IV	Theory-1	General Chemistry-II	Passed Sem-III Theory Paper-1	Yes for the students with major Zoo/Bot./Physics/Math/Comp Sci/Forestry/Geo	60	4
		Practical-2	Analytical Procedures-II	Opted Sem-IV Theory Paper-1	Yes for the students with major Zoo/Bot./Physics/Math/Comp Sci/Forestry/Geo	60	2
Degree in Bachelor of Science	V	Theory-1	Inorganic Chemistry	Passed Sem-III and Sem-IV Theory papers	Yes for the students with major Zoo/Bot./Physics/Math/Comp Sci/Forestry/Geo	60	4
		Theory-2	Organic Chemistry	Passed Sem-III and Sem-IV Theory papers	Yes for the students with major Zoo/Bot./Physics/Math/Comp Sci/Forestry/Geo	60	4
		Practical-3	Analytical Procedures-III	Opted Sem-V Theory Paper-1 &2.	Yes for the students with major Zoo/Bot./Physics/Math/Comp Sci/Forestry/Geo	60	2
		Research Project				60	Qualifying
	VI	Theory-1	Physical Chemistry	Passed Sem-V Theory papers	Yes for the students with major Zoo/Bot./Physics/Math/Comp Sci/Forestry/Geo	60	4
		Theory-2	Analytical Chemistry	Passed Sem-V Theory papers Theory papers	Yes for the students with major Zoo/Bot./Physics/Math/Comp Sci/Forestry/Geo	60	4
		Practical-3	Analytical Procedures-IV	Opted Sem-VI Theory Paper-1 &2	Yes for the students with major Zoo/Bot./Physics/Math/Comp Sci/Forestry/Geo	60	2
		Research Project				60	Qualifying