Program Outcomes, Program Specific Outcomes and Course Outcomes
DEPARTMENT OF CHEMISTRY
Programme Outcomes: M. Sc. Chemistry

Department of Chemistry	After successful completion of course in Chemistry students will be able to:
Programme Outcomes	PO1: Demonstrate, solve and understand major concepts in all disciplines of Chemistry. PO2: Solve the problem and also think methodically, independently and draw a logical conclusion. PO3: Employ critical thinking and the scientific knowledge to design, carry out, record and analyse the results of chemical reactions. PO4: Create an awareness of the impact of Chemistry on the environment, society, and development outside the scientific community. PO5: Find out the green route for chemical reaction for sustainable development. PO6: To inculcate the scientific temperament in the students and outside the scientific community. PO7: Use modern techniques, various equipment and Chemical software.
Programme Specific Outcomes	PSO1: Gain the knowledge of Chemistry through theory and practical experiments. PSO2: Explain nomenclature, stereochemistry, structures, reactivity, and mechanism of the chemical reactions. PSO3: Identify chemical formulae and solve numerical problems. PSO4: Understand the basic principles of Organic, Inorganic, Physical and Analytical Chemistry and its applications through Various laboratory experiments. PSO5: Use modern chemical tools, Models, Chem-draw, Charts and Equipments. PSO6: Apply good laboratory practices and safety. PSO7: Develop research oriented skills.
Course Outcomes of M. Sc. Chemistry	
Semester-I	
CH-411 [Inorganic Chemistry-I]	CO1: Understand the various symmetry elements, their matrix representation and its application in spectroscopy. CO2: Understand theories of Metal-Ligand bindings of magnetic properties of metal Complexes.
CH-412 [Organic Chemistry-I]	CO1: Describe the knowledge on localised and delocalised bonding patterns. CO2: Explain the energy change pertaining to the

	delocalised of pi-bonds. CO3: Draw free energy diagrams of different reaction intermediates and Transition states. CO4: Illustrate Thermodynamic and kinetic controlled reactions. CO5: Elaborate the different substitutions reactions in aromatic and aliphatic systems. CO6: General stereochemistry around estrogenic centre.
CH-413 [Physical Chemistry-I]	CO1: Describe Chemical Kinetics and transition state theories, homogeneous and heterogamous catalyst, adsorption and abortions. CO2: Explain Phase rule and different component systems. CO3: Define Polymerization process and kinetics of step growth and condensation polymers.
CH -414 [Instrumental Methods Of Analysis]	CO1: Describe atomic absorption and flame emission Spectroscopy, electro analytical and Thermo analytical analysis of compounds CO2: Explain Different chromatography techniques for isolation of compounds.
CH -415 [Inorganic Practical-I]	CO: Analyse the mixture containing radicals.
CH -416 [Organic Practical-I]	CO: Identify and isolate of different organic compounds.
Semester-II	
Course No. CH-421 [Inorganic Chemistry-II]	CO1: Describe metal carbonyl and metal clusters, their structure and properties associate with it. CO2: Explain Bimolecular storage, transportation of different ions and bio-molecular catalysts.
CH -422 [Organic Chemistry-II]	CO1: Examine the Addition and Elimination reactions in details. CO2: Define Mechanistic considerations of different reaction intermediates and corresponding reactions. CO3: Understand different reaction paths and population ratio.
CH-423 [Physical Chemistry-II]	CO1: Understand basic idea on classical thermodynamics, especially to open systems CO2: Apply Advanced approaches of statistical thermodynamics to distinguishable and non-distinguishable cases CO3: Usage of computers in chemistry.
CH -424 [Atomic & Molecular Spectroscopy]	CO1: Describe the principles of various atomic and molecular spectroscopies CO2: Apply spectroscopy in various fields of chemistry
CH -425 [Inorganic Practical-II]	CO1: Estimation of Ca and Mg in cement. CO2: Preparation and characterization of various inorganic compounds

CH -426 [Organic Practical-II]		CO1: Setup reaction to synthesise simple compounds and Isolate them.
Semester-III		
CH -511 [Inorganic Chemistry-III]		CO1: Explain on kinetic application of CFT and substitution in various complexes and redox reactions CO2: Describe nuclear chemistry, reactors and future trends CO3: Create Basic and advanced idea on solid state chemistry
CH -512 [Organic Chemistry-III]		CO1: Use of different metal catalyst in redox reactions. CO2: Elaborate Photochemistry and pericyclic reaction Synthetic design of Organic molecules.
CH -513 [Physical Chemistry-III]		CO1: Understand on Quantum mechanical on various fundamental particles CO2: Application Quantum mechanical to molecules.
CH -514 [Analytical Techniques In Organic Chemistry]		CO1: Advanced spectroscopic technique for identification of organic compounds CO2: Describe optical rotatory dispersion and circular dichroism
CH -515 [Physical Chemistry Practical]		CO1: Know the instrumental applications in detecting various physical parameters CO2: Describe various adsorptions of chemicals
CH -516 [Computational Chemistry Practical]		CO: Known the application of computer and advanced software in analysing chemical information
Semester-IV		
CH -521 Advanced Organometallic Chemistry		CO1: Basics of organometallic chemistry and its reactions CO2: Neutral spectator ligands and alkene metathesis reactions
CH -522	[Advanced Organic Synthesis]	CO1: Synthesis and characterisation of Heterocyclic compounds. CO2: Know the Synthetic use of Organometallic reagents. CO3: Describe modern synthetic use of Organometallic compounds.
	Advanced Analytical Chemistry	CO1: Find out reliability of analytical data, errors, sampling process CO2: Describe microscopy in chemistry
	Photophysical Chemistry	CO1: Understand the influence of sunlight in chemistry CO2: Elaborate instrumentation in photochemistry
CH -523	Supramolecular Chemistry	CO1: Explain Fundamentals of supramolecular chemistry and its applications
	Chemistry Of Nanomaterials	CO1: Know the Application of nano-materials in advanced chemistry. CO2: Know the polymers and their application

	Molecular Modelling	CO1: Define the DFT of molecules CO2: Illustrate Computational designs on drugs and functional materials
CH -524 Project		Develop exposure to practical challenges and solutions by doing project work.
CH -525 Comprehensive Viva		Develop the skills of presentation and speaking fluency.
CH -526 Seminar		Develop the skill of presentation, explanation and elaboration.