

MS Two Years Program
Year 1 (Two Semesters): Course Work Year
2 (Two Semesters): Research Work

Semester – I			
Course Code	CourseTitle	Credit Hours	Catagory
CHEM-701	Scientific Writing & Research Methods	3(3-0)	Core
CHEM-7--	Elective – I	3(3-0)	Elective
CHEM-7--	Elective – II	3(3-0)	Elective
CHEM-7--	Elective – III	3(3-0)	Elective
UHQ-701	Understanding of Quran – I **	(0-1)	General
Total Credit Hours		13	
Semester – II			
CHEM-707	Advanced Techniques in Chemistry	3(3-0)	Core
CHEM-	Elective – IV	3(3-0)	Elective
CHEM-	Elective – V	3(3-0)	Elective
CHEM-	Elective – VI	3(3-0)	Elective
UHQ-702	Understanding of Quran – II **	(0-1)	General
Total Credit Hours		13	
Semester – III & IV			
CHEM-710	Thesis	6(0-6)	Research
Total Credit Hours		6	
MS Chemistry Total Credit Hours:		32	

CORE COURSES (Course code)

Scientific Writing & Research Methods (CHEM-701)

Advanced Techniques in Chemistry (CHEM-707)

* Note: Department of Chemistry shell has to offer courses of 18 credit hours out of the following elective courses list. New courses may also be designed according to the expertise available.

ELECTIVE COURSES DETAILS FOR MS/PhD IN CHEMISTRY PROGRAMS
ELECTIVE COURSES

COURSES OF INORGANIC/ANALYTICAL CHEMSITRY (Course code)

Advanced Spectroscopic Techniques (CHEM-702)

Solid State Chemistry (CHEM-703)

Chemistry of Organometallics (CHEM-704)

Advanced Chromatographic Techniques (CHEM-705)

Inorganic electronic spectroscopy (CHEM-706)
Kinetics and Mechanisms of Inorganic Reactions (CHEM-712)
Bioanalytical Chemistry (CHEM-713)
Metal-based drugs (CHEM-714)
Nanochemistry (CHEM-715)
Green Chemistry Techniques (CHEM-716)
Thermal Analysis (CHEM-717)
Validation of Analytical Methods (CHEM-718)
Nuclear medicine (CHEM-719)
Food, pharmaceutical and Forensic analysis (CHEM-720)
Advanced Electroanalytical Techniques (CHEM-721)
Inorganic Material Chemistry (CHEM-722)
Characterization of Natural Antioxidants and Essential Oils (CHEM-723)

COURSES OF ORGANIC CHEMSITRY (Course code)

Natural ProductsChemistry (CHEM-724)
Synthetic Applications of Named Reactions (CHEM-725)
Advanced Spectroscopy (CHEM-726)
Advanced Heterocyclic Chemistry (CHEM-727)
Organic Polymer Chemistry (CHEM-728)
Pharmaceutical Chemistry (CHEM-729)
Supramolecular Chemistry (CHEM-730)
Phytochemical Techniques (CHEM-731)
Modern Trends in Asymmetric Synthesis (CHEM-732)
Advanced Stereochemistry (CHEM-733)
PericyclicChemistry (CHEM-734)
Organic Compoundscontaining S, P & Si (CHEM-735)
Dyes and Pigments (CHEM-736)
Physical Organic Chemistry (CHEM-737)

COURSES OF PHYSICAL CHEMSITRY (Course code)

Polymers and Advanced Composite Materials (CHEM-738)
Advanced Quantum Chemistry (CHEM-739)
Advanced Photochemistry and Radiation Chemistry (CHEM-740)
Advanced Electrochemistry (CHEM-741)
Surface Chemistry (CHEM-742)
Advanced Statistical Thermodynamics (CHEM-743)
Biophysical Chemistry (CHEM-744)
Chemistry of Atmosphere (CHEM-745)
Advanced Solid State Chemistry and Characterization Techniques (CHEM-746)
Advanced Reactions Dynamics (CHEM-747)
Nanomaterials (CHEM-748)
Magnetic Spin Dynamics (CHEM-749)
Applied Nuclear Chemistry (CHEM-750)

COURSES OF APPLIED CHEMISTRY (Course code)

Environmental Impact of Chemical Industries (CHEM-751)

Nanomaterials and their applications (CHEM-752)

Chemistry of Dyes and Pigments (CHEM-753)

Pharmaceutical Chemistry (CHEM-754)

Advanced Polymer Chemistry (CHEM-755)

Agrochemicals (CHEM-756)

Physical Structure of Porous Materials (CHEM-757)

Industrial Process Chemistry (CHEM-758)

Advances in Petrochemical Industries (CHEM-759)

Coal Gasification and Liquefaction Alternative Fuels (CHEM-760)

Nuclear Fuel Processing and waste management (CHEM-761)

Alternative Energy Sources (CHEM-762)

Note: Any other course according to the availability of facilities, expertise in the institution may be offered.