

**DEPARTMENT OF CHEMISTRY, UNIVERSITY OF MALAKAND**

**M.Phil./Ph.D. (MAJOR COURSES)**

<b>Course #</b>	<b>Title of Course</b>	<b>Credit Hours</b>
Chem. 701	Voltametric Techniques	3
Chem.702	Separation Techniques	3
Chem.703	Atomic Spectroscopy	3
Chem.704	Electrochemistry, Potentiometry, Conductometry and Coulometry	3
Chem.705	Environmental Chemical Analysis	3
Chem.801	Advance Chemical Analysis	3
Chem.802	Special Topics in Analytical Chemistry	3
Chem.901	Modern Chromatographic Techniques	3
Chem.710	Physical Structure of Porous Materials	3
Chem.711	Applied Polymer Chemistry	3
Chem.712	Industrial Process Chemistry	3
Chem.713	Corrosion and its Prevention	3
Chem.810	Advance Applied Chemistry	3
Chem.811	Special Topics in Applied Chemistry	3
Chem.812	Technology of Fertilizers	3
Chem.910	Surface Nature and Characterization of Porous Materials	3
Chem.720	Biological Membrane	3
Chem.721	Molecular Endocrinology	3
Chem.722	Amino acid Metabolism	3
Chem.723	Molecular Biology	3
Chem.724	Isotopic Tracers in Biochemistry	3
Chem.725	Clinical Chemistry	3
Chem.820	Advance Biochemistry	3
Chem.821	Special Topics in Biochemistry	3
Chem.920	Enzyme Kinetics	3
Chem.921	Carotenoids	3
Chem.922	Lipid Metabolism	3
Chem.923	Protein Chemistry	3
Chem.924	Sterol/Cholesterol Metabolism	3
Chem.925	Biochemistry of Antimicrobial Action	3
Chem.730	Atmospheric Chemistry	3
Chem.731	Green Chemistry	3
Chem.732	Atmospheric Pollution	3
Chem.733	Chemical and Environmental Health	3
Chem.734	Chemical Toxicology	3
Chem.830	Advanced Environmental Chemistry	3
Chem.831	Special Topics in Environmental Chemistry	3
Chem.832	Computational Radiology	3

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<b>Course #</b>	<b>Title of Course</b>	<b>Credit Hours</b>
Chem.740	Technology of Solid/Liquid Fuel	3
Chem.741	Technology of Gaseous Fuel	3
Chem.743	Petrochemical Processes-1	3
Chem.744	Alternate Sources of Energy	3
Chem.745	Distillation Processes	3
Chem.746	Polymer Chemistry	3
Chem.840	Advance Fuel Chemistry	3
Chem.841	Special Topics in Fuel Chemistry	3
Chem.940	Advances in Petrochemical Industries	3
Chem.941	Advances in Catalysis	3
Chem.942	Petrochemical Processes-II	3
Chem.943	Advances in Petroleum Production	3
Chem.750	Radiochemistry	3
Chem.751	Nuclear Chemistry	3
Chem.752	Organic Reagent in Inorganic Chemistry	3
Chem.753	Bio-Inorganic Chemistry	3
Chem.754	Inorganic Reagent in Organic Synthetic Chemistry	3
Chem.755	Group Theory Applications in Chemistry	3
Chem.756	Advanced Nuclear Chemistry	3
Chem.757	Scientific Writing	3
Chem.758	Bio-Statistics	3
Chem.759	Radiation Protection and Radioactive Waste Management	3
Chem.850	Advanced Inorganic Chemistry	3
Chem.851	Special Topics in Inorganic Chemistry	3
Chem.852	Nuclear Biomedical Instrumentation	3
Chem.853	Research Methods in Nuclear Pharmacy Practice	3
Chem.854	Bio-Informatics	3
Chem.855	Radio Pharmaceutical Control	3
Chem.856	Project Planning and Management	3
Chem.950	Inorganic Reaction Mechanisms	3
Chem.951	Advanced Coordination Chemistry	3
Chem.952	Organometalic Chemistry	3
Chem.953	X-Rays Crystallography	3
Chem.955	Special Topics in Diagnostic Nuclear Chemistry	3
Chem.956	Biophysics	3
Chem.760	Interpretative Spectroscopy	3
Chem.761	Phytochemistry	3
Chem.762	Stereochemistry	3
Chem.763	Biosynthesis and Natural Products Synthesis	3
Chem.764	Organic Name Reactions and Synthetic Reagents	3
Chem.860	Advanced Organic Chemistry	3

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**M.Phil/Ph.D (MAJOR COURSES)**

<b>Course #</b>	<b>Title of Course</b>	<b>Credit Hours</b>
Chem.861	Special Topics in Organic Chemistry	3
Chem.862	Photochemistry	3
Chem.960	Medicinal Chemistry	3
Chem.961	Advanced Synthetic Organic Chemistry	3
Chem.962	Advanced Nuclear Magnetic Resonance Spectroscopy	3
Chem.963	Advanced Physical Organic Chemistry	3
Chem.964	Asymmetric Synthesis	3
Chem.965	Biotransformation	3
Chem.966	Advanced Mathematics for Chemists	3
Chem.772	Molecular Spectroscopy	3
Chem.870	Advanced Physical Chemistry	3
Chem.871	Special Topics in Physical Chemistry	3
Chem.970	Quantum Chemistry	3
Chem.971	Surface Chemistry	3
Chem.972	Chemical and Statistical Thermodynamics	3
Chem.973	Thermochemistry	3
Chem.974	Advance Electrochemistry	3
Chem.975	Recent Topics in Physical Chemistry	3
Chem.976	Composite Material	3
Chem.977	Polymer Characterization	3
Chem.978	Nanomaterials and their applications	3

**DEPARTMENT OF CHEMISTRY UNIVERSITY OF MALAKAND**

**M.Phil/Ph.D (RELATED COURSES)**

<b>Course #</b>	<b>Title of Course</b>	<b>Credit Hours</b>
Chem.700	Computer Programming in Chemistry	3
Chem.706	Glass Blowing	1
Chem.707	Electronics Computer and Automation in Analytical Chemistry	3
Chem.780	Catalysis in Chemical Reactions	3
Chem.781	Ion Exchange Chemistry	3
Chem.782	Integrated Chemistry Processes	3
Chem.783	Methods of Determination of Reactions Mechanism	3
Chem.784	Advanced Instrumental Techniques	3
Chem.785	Computational Chemistry	3
Chem.786	Quantitative Problems/Interpretation of Data	3
Chem.787	Water Purification Processes	3
Chem.788	Combinational Chemistry	3
Chem.789	Research Methodology and Literatures Review in Chemistry	3
Chem.790	Chemistry of Biominerals	3
Chem.791	Chemistry of New Materials	3
Chem.792	Instrumental Method of Analysis	3
Chem.880	Heterogeneous Catalysis	3
Chem.881	Mass Spectrometry	3
Chem.882	Special Topics in Chemistry	3
Chem.883	Laboratory Practical Supervision	3
Chem.884	Term Paper	3
Chem.885	Seminar	3