

COURSE CURRICULUM FRAMEWORK UNDER AUTONOMY

Program: M.Sc. Inorganic chemistry

Department: Chemistry

Semester I		
Course code	Course Title	Credits
	Title of Course List of Titles of units of the Course	
PSCHE101	Physical Chemistry-I Chemical Thermodynamics-I Quantum Chemistry-I Chemical Dynamics-I Electrochemistry	4
PSCHE102	Inorganic Chemistry-I Chemical Bonding Molecular Symmetry and Group Theory Environmental Chemistry Characterisation of Coordination compounds	4
PSCHE103	Organic Chemistry-I Physical Organic Chemistry Nucleophilic substitution reactions and Aromaticity Stereochemistry of Organic Compounds Oxidation and Reduction	4
PSCHE104	Analytical Chemistry-I Language of Analytical Chemistry Calculations based on Chemical Principles Optical Methods X-ray spectroscopy	4
PSCHEPR101	Physical Chemistry Practical-I	2
PSCHEPR102	Inorganic Chemistry Practical-I	2
PSCHEPR103	Organic Chemistry Practical-I	2
PSCHEPR104	Analytical Chemistry Practical-I	2

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Semester II		
Course code	Course Title	Credits
	Title of Course List of Titles of units of the Course	
PSCHE201	Physical Chemistry-II Chemical Thermodynamics II Quantum Chemistry II Chemical Kinetics & Molecular Reaction Dynamics Solid State Chemistry & Phase Equilibria	4
PSCHE202	Inorganic Chemistry-II Inorganic Reaction Mechanism Organometallic Chemistry of Transition Metals Introduction to Nanomaterials & Nanotechnology	4
PSCHE203	Organic Chemistry-II Enols and Enolates Name Reactions & Rearrangements Molecular Orbital Theory & Photochemistry Organic Spectroscopy	4
PSCHE204	Analytical Chemistry-II Chromatography Thermal Methods, Hyphenation & Automation in Chemical Analysis Surface Analytical Techniques Electroanalytical Methods	4
PSCHEPR201	Physical Chemistry Practical-II	2
PSCHEPR202	Inorganic Chemistry Practical-II	2
PSCHEPR203	Organic Chemistry Practical-II	2
PSCHEPR204	Analytical Chemistry Practical-II	2

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Semester III		
Course code	Course Title	Credits
	Title of Course List of Titles of units of the Course	
PSCHE2301	Coordination and Bioinorganic Chemistry Structure, Bonding & Stereochemistry of Coordination Compounds Electronic Spectra & Magnetic properties of Complexes Advanced Bioinorganic Chemistry Reactivity of Chemical Species	4
PSCHE2302	Atomic, Molecular Structure & Spectroscopy Atomic Structure & Spectroscopy Molecular Structure & Electronic Spectroscopy Molecular Spectroscopy I Molecular Spectroscopy II	4
PSCHE2303	Nanochemistry and Nanotechnology Introduction to Nanomaterials and Nanotechnology Advanced Characterization of Nanomaterials Applications of Nanomaterials Environmental Nanotechnology	4
PSCHE2304	Application of Materials & Nuclear Chemistry Metals and alloys Mechanical properties of Solid Materials Lasers and superconductors Nuclear Chemistry	4
PSCHEP2301	Practical Coursework I	2
PSCHEP2302	Practical Coursework II	2
PSCHEP2303	Research Methodology	2
PSCHEP2304	Literature Review	2

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Semester IV		
Course code	Course Title	Credits
	Title of Course List of Titles of units of the Course	
PSCHE2401	Organometallics and Inorganic Polymers Organometallic Chemistry Applications of Organometallic Compounds Inorganic Polymers Reactivity of Chemical Species II	4
PSCHE2402	Solid State Chemistry Structure, properties and Synthesis of solids Crystal defects and non-stoichiometry Electrical and Magnetic Properties of Solids Thermal and Optical Properties of Solids	4
PSCHE2403	Photochemistry and Advanced Spectroscopy Photochemistry & Photocatalysis Applications of Fluorescence Phenomena Advanced Spectroscopic Techniques-I Advanced Spectroscopic Techniques II	4
PSCHE2404	Materials, Devices and Computational Chemistry Energy Conversion and Storage Devices Organic Electronic & Photonic Materials Intellectual Property Rights Chemoinformatics	4
PSCHEP2401	Practical Coursework III	2
PSCHEP2402	Practical Coursework IV	2
PSCHEP2403	Spectral Interpretation	2
PSCHEP2404	Research Project	2