

Mapping of the courses to Employability



Hindi Vidya Prachar Samiti's
Ramniranjan Jhunjhunwala College
Of Arts, Science & Commerce
(Autonomous College)

Affiliated to
UNIVERSITY OF MUMBAI

Mapping of the courses to Employability

Program: M.Sc. INORGANIC CHEMISTRY

Program Code: RJSPGCHEI

(CBCS 2020-2021)

Mapping of the courses to Employability**Mapping of the courses to Employability / Entrepreneurship / Skill Development****Name of the Program M.Sc INORGANIC CHEMISTRY**

Class	Course Name	Course Code	Topics focusing on Employability / Entrepreneurship / Skill development	Employability / Entrepreneurship / Skill development
M.Sc. Sem-I	Chemistry	RJSPGCHE101	1. Thermodynamics-I 2. Quantum Chemistry 3. Chemical Dynamics-I 4. Electrochemistry, Employability in the field of electrochemistry	
		RJSPGCHE102	1. Chemical Bonding 2. Molecular Symmetry and Group Theory 3. Materials Chemistry and Nanomaterials 4. Characterisation of Coordination compounds Students study the nature of various bonds, the solid molecular structures, their symmetry and characterization. They also study about nano materials.	
		RJSPGCHE103	Physical Organic Chemistry, Nucleophilic substitution reactions and Aromaticity, Aromaticity, Stereochemistry, Oxidation and Reduction Students can understand the importance of chirality concepts, reagents used and the mechanism in organic reactions.	
		RJSPGCHE104	1. Language of Analytical Chemistry, Quality in Analytical Chemistry 2. Calculations based on Chemical Principles. 3. Optical Methods, Spectroscopy 4. Thermal Methods Students learn to handle analytical instruments. Employability as chemist in analytical instrumental laboratories	
M.Sc. Sem-II	Chemistry	RJSPGCHE201	1. Chemical Thermodynamics II 2. Quantum Chemistry II 3. Chemical Kinetics & Molecular Reaction Dynamics 4. Solid State Chemistry and Phase Equilibria	
		RJSPGCHE202	1. Inorganic reaction mechanism	

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			2.Organometallic chemistry of transition metals 3.Environmental chemistry 4.Bio-inorganic chemistry Students learn ligand substitution reactions, their rates, applications of organometallic compounds, role of metal ions in biological systems and radiation hazards and other environmental issues.
		RJSPGCHE203	Alkylation of Nucleophilic Carbon Intermediates, Reaction of carbon nucleophiles with carbonyl groups, Reactions and Rearrangements, introduction to Molecular Orbital Theory for Organic Chemistry and Spectroscopy. Students understand molecular orbital theory of organic molecules, nucleophilic substitution reactions and rearrangement in organic reactions, application of Spectroscopy to solve different problems.
		RJSPGCHE204	1. Chromatography 2. X-ray spectroscopy, Mass spectrometry. Radioanalytical Methods 3. Surface Analytical Techniques, Atomic Spectroscopy. 4. Electroanalytical Methods, Ion selective potentiometry and Polarography. Electrogravimetry, Coulometry. Students learn various analytical techniques and their applications in different fields.
M.Sc.	Chemistry	RJSPGCHEI301	1. Descriptive Crystal Chemistry 2. Imperfection in crystals and Non-Stoichiometry. 3. Methods of Preparations 4. Behaviour of Inorganic Solids Students learn in detail the solid state chemistry with their imperfections and properties due to it.
Sem III		RJSPGCHEI302	1.. Bioinorganic Chemistry 2. Reactivity of Chemical Species –I 3. Reactivity of Chemical Species –II

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			4. Structure, Bonding, and Stereochemistry of Coordination Compounds Students learn in detail coordination chemistry and their role in biological systems.
		RJSPGCHEI303	1. Diffraction Methods 2. Electron Diffraction 3. Neutron Diffraction Electron Spin Resonance Spectroscopy. Mossbauer Spectroscopy Students learn about the different crystal structures using spectroscopic techniques.
		RJSPGCHEI304	1. Inorganic Materials 2. Nuclear Chemistry and Inorganic Pharmaceuticals. 3. Advances in Nanomaterials 4. Some Selected Topics. Students understand nano materials and their applications in pharmaceutical companies.
M.Sc.	Chemistry	RJSPGCHEI401	Students learn the properties of solid materials and application of group theory to electronic structures. Employability in the field of synthesis of solid materials,
Sem IV		RJSPGCHEI402	Skills to synthesize Organometallic, inorganic cluster and cage compounds, ring and chain compounds and to use them for different applications.
		RJSPGCHEI403	To learn Spectroscopy, surface chemistry and thermal methods and to handle the related instruments.
		RJSPGCHEI404	To understand about Intellectual property rights and cheminformatics.
M.Sc.	Chemistry	RJSPGCHEPR101	Learning of advanced concepts and skill development (Determination of solubility products, potentiometry & conductometry).
Sem I		RJSPGCHEPR102	Ores and alloys and Instrumental analysis, Students learn to handle instruments like potentiometer and to perform redox titrations. They also learn to analyse the various metal contents in a given ore/alloy sample.

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		RJSPGCHEPR103	Organic Preparations, understanding of synthesis, effect of reaction parameters including stoichiometry, and safety aspects including MSDS . Purification of product ,melting point.
		RJSPGCHEPR104	Students learn to carry out assay by Volhard's method. Statistical method. to determine the ion exchange capacity,to carry out quantitative complexometric titrations.
M.Sc.	Chemistry	RJSPGCHEPR201	Learning of advanced concepts, skill development and employability (Catalysis, CMC determination, phase diagrams & plots of atomic orbitals)
Sem II		RJSPGCHEPR202	Inorganic preparation of metal complexes (Synthesis and characterisation & Instrumentation. Students learn to synthesis and characterize metal complexes and learn to handle potentiometer and conductometer.
		RJSPGCHEPR203	Separation of Binary mixture using micro-scale technique. Students Understand the chemical separation techniques of organic binary mixtures & develop the skill in purification techniques.
		RJSPGCHEPR204	Students learn to handle instruments like Potentiometer, colorimeter, spectrophotometer and flame photometer
M.Sc.	Chemistry	RJSPGCHEPRI301	Analysis of ores and alloys: Brass, Bronze, Galena and Zinc blende. Students learn to analyse the metal content in the given ore/alloy sample.
Sem III		RJSPGCHEPRI302	Separation of metals by Solvent extraction. Students learn the technique of metal extractions by using organic inert solvents.
		RJSPGCHEPRI303	students learn the preparation of Co, Ni, Cu coordination complexes.
		RJSPGCHEPRI304	Students learn to analyse the commercial samples by complexometry ,iodometry and colorimetry,
M.Sc.	Chemistry	RJSPGCHEPRI401	Skills to analyse commercial samples containing Na/K using flame
Sem IV			

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	photometry and conductometry & to study Volhard's method.
RJSPGCHEPRI402	Learn to determine stability constants of coordination complexes and CFSE values.
RJSPGCHEPRI403	Skills to interpret the spectra of inorganic metal complexes
RJSPGCHEPRI404	Project