Sudhagad Education Society's
Sheth J.N. Paliwala Commerce College, Science & Arts College
Pali - Sudhagad - Raigad (M. S.) PIN 410205

COURSE OUTCOMES OUT COMES OF BACHLEOR OF CHEMISTRY

Semester I

Course Outcome	**Chemistry Paper I**
1	To Know the ideas of de-Broglie and Heisenberg Uncertainty principle
2	To understand the various types of quantum numbers and principle of extra stability
3	To understand the electronic displacement and concept of organic reaction
4	To Understand the concept Chemical Thermodynamics
5	To understand the long form of the periodic table, interpretation of the periodic table
6	To know about the classification and Nomenclature of Organic Compounds
7	To understand the fundamentals of organic reactions.
Course Outcomes	**Chemistry Paper II**
1	To understand the basic concept of Chemical kinetics
2	To understand the basic concept of main group elements
3	To understand the basic concept of stereochemistry
4	To understand the concept of surface tension and methods of determination of surface tension
5	To knows about the concept of viscosity and determination of viscosity by viscometer
6	To knows about the basic concept of geometrical and optical isomerism

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Semester II

	Chemistry Paper I
1	To know about the concept of kinetic theory of gases and gaseous state of matter
2	To know the concept of Chemical equilibrium and thermodynamic parameters and laws of thermodynamics.
3	To understand the Concept of Qualitative Analysis
4	To understand the basic concept of acid base theory
5	To understand organic reactions like Fridel & Craft reaction
6	To understand the basic concept of chemistry of aliphatic hydrocarbons
	Chemistry Paper II
1	To knows about the concept of Ionic equilibrium in chemical reactions.
2	To understand the concept of Molecular spectroscopy
3	To understand the concept of solid state chemistry and laws of Crystallography
4	To know the concept of electromagnetic radiation, Planck's quantum theory
5	To understand the Beer's & Lamberts law
	Chemistry Practicals
1	To perform the experiments on Physical chemistry like the standardization of NaOH, dermine the rate constant of acid hydrolysis of methyl acetate ester.
2	To perform the experiments on commercial analysis of mineral acids , organic acids and salt of weak acid and strong base
3	To perform the experiments on gravimetric analysis
4	To purify the organic compounds by crystallization process
5	To perform the experiments on paper chromatography
6	To separate the mixture of Ortho and Para nitro phenols by thin layer chromatography

Semester III

Course Outcome	**Chemistry Paper I**
1	To understand the concept of Chemical Thermodynamics & Electrochemistry
2	To understand the nature of bond in various compounds and to interpret the structure
3	To understand the reaction mechanism in various organic compounds.
4	To Understand the concept of reactions and reactivity of halogenated hydrocarbons, alcohols, phenols and epoxides
5	To make the learner capable of solving problems in the various units of this course
Course Outcomes	**Chemistry Paper II**
1	To understand the basic concept of Chemical kinetics
2	To understand the basic concept of main group elements
3	To understand the basic concept of stereochemistry
4	To understand the concept of surface tension and methods of determination of surface tension
5	To knows about the concept of viscosity and determination of viscosity by viscometer
6	To knows about the basic concept of geometrical and optical isomerism
Course Outcomes	**Chemistry Paper III**
1	Students are able to understand the basics of analytical chemistry in non-chemistry fields like pharmacy.
2	Students should able to understand method of analysis of substance, procedure for analysis
3	Students should understand errors and sources of errors in chemical analysis.
4	Understand the concept of sampling.
5	Students should be able to identify sources of possible errors in the results obtained.

Semester IV

Course Outcomes	Chemistry Paper I
1	Students will be able to understand basic knowledge of Electrochemistry.
2	Students will be able to understand the concept of vapour pressure and equations associated with it.
3	Students will able to identify & classify all periodic properties of transition metals
4	Students will be able to understand Application of coordination compounds.
	Students will be able to identify, formulate And Solve carboxylic acid reactions.
Course Outcomes	**Chemistry Paper II**
1	To understand the laws of Crystallography
2	To know about the importance of catalyst in chemistry
3	To understand about the environmental aspects of oxy acids of N & P
4	To know the importance of nitrogen containing & heterocyclic compounds.
	Chemistry Paper III
1	Understand Basics of Chemical analysis, Separating components of given sample
2	To understand basic concepts like pH different experimental techniques and different ways to analyse the samples.
3	Understand Statistical Treatment of analytical data --II.
4	To know the various Instrumental Methods and select a method of separation of an analyte from the matrix.
5	To study the effect of various parameters on solvent extraction of a solute

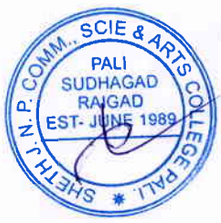
Semester V

Course Outcomes	Physical Chemistry USCH 501
1	Students will be able to understand the concept of Molecular spectroscopy
2	Students will be able to understand the concept of Chemical Thermodynamics
3	Students will be able to understand the concept of Chemical Kinetics
4	Students will be able understand the importance of Nuclear chemistry
5	Students will be able understand the concept of Adsorption ,Adsorption isotherm and colloidal state of matter.
Course Outcomes	**Inorganic Chemistry USCH 502**
1	Students will be know about the concept of Molecular symmetry and Chemical bonding
2	Students will be know about the structure of solid and calculation of APF in various arrangement of solids.
3	Students will be understand the importance of Inner transition elements, their separation and applications.
4	Students will be able know about the concept of non aqueous solvents and chemistry of group 17 elements.
	Organic Chemistry USCH503
1	Students are able to understand synthesis and mechanisms of organic reactions
2	Students able to understand photochemical phenomenon occur in organic compounds.
3	Students are able to understand IUPAC nomenclature of organic compounds
4	Students are able to understand the use of UV-visible and mass spectrometry in structure determination.
5	Students able to understand chemistry of natural products
	Analytical Chemistry US CH 504
1	The students learn about understand the concept of errors, measures of central tendency and dispersion. Sampling techniques. Sampling of gases, solids and liquids.
2	To learn the calculations for construction of acid-base titration curve as pH with volume of titrant added. Understand the theory of precipitation titration, especially argentometric titration, their types ad indicators used for the titrations. Know about the instrumentation of photometers and spectrophotometers, qualitative and quantitative analysis
3	Learn the calculations of extraction efficiency, ways to enhance the separation efficiency and different types of solvent extraction. Introduction and classification of chromatographic techniques Principle, techniques and applications of paper and thin layer chromatography.

4	Students learn about: Atomic spectroscopy including basic principle of Flame emission spectroscopy and atomic absorption spectroscopy, instrumentation, qualitative and quantitative analysis and applications. Molecular Fluorescence and Phosphorescence Spectroscopy :Theory, Instrumentation and applications Turbidimetry and Nephelometry: Basic principle instrumentation and application.
Course outcomes	**Applied Component (Drugs and Dyes) USDD01**
1	They will come to know the Health and Environmental Hazards of Synthetic Dyes and their Remediation Processes.
2	Effluent Treatment Strategies, Non-textile uses of dyes, Dyes used in food and cosmetics,
3	Students will study different types and applications of Paper and leather dyes, Miscellaneous dyes, pigments

Semester VI

Course Outcomes	**Physical Chemistry USCH 601**
1	They will understand the concept of electrochemistry and electrochemical cells.
2	Understand types of polymers and different applications of polymers in different area.
3	Students will able to know about the basic concept of Quantum mechanics and renewable energy sources.
4	Students will able to the concept of NMR and ESR spectroscopy and its application in structural elucidation of organic compounds.
Course Outcomes	**Inorganic Chemistry USCH 602**
1	Students will be able to understand the concept of bonding and theories of bonding in coordination compounds.
2	To understand the concept of stability, electronic spectra, reactivity and molecular orbital theory of complexes.
3	Students will be able to understand the classification, synthesis, reactivity, structure and bonding of organometallic compounds.
4	Students will be able to know about the concept of metallurgy, chemistry of group 18 elements and bioinorganic chemistry.



Course Outcomes	Organic Chemistry USCH 603
1	Students will understand structure of the organic compound from spectral data
2	They will be able to understand various organic reactions from reagents and catalysts
3	Structures and uses Polymers and Nucleic acids
Course Outcomes	**Analytical Chemistry USCH 604**
1	The students learn about DC polarography including basic principle and the concepts involves in it. Instrumentation, qualitative and quantitative analysis and applications. Amperometric titrations: Basic principle, instrumentation, various titration curves with example, advantages and applications.
2	Students get basic understanding of Gas chromatography, High performance liquid chromatography and Ion exchange chromatography including of each the basic principle, special features regarding theoretical part, instrumentation and applications.
3	Students add to their knowledge about treatment of data as regards distribution of random errors presented as Gaussian distribution curve, Confidence limit and confidence interval, criterion of rejection of results, testing of significance, graphical representation of results. Complexometric titrations: Specially EDTA titrations including theory of titration curves, metallochromatic indicators, methods to increase selectivity and applications. Redox titrations : Using example of Fe(II) titrations, calculation of potetiometric titration curve for one electron and multi-electron system, redox indicators
4	Students are introduced to the concept of TQM, ISO series and Good laboratory practices. Mass spectrometry: concept and introduction of components. Radio-analytical techniques : Classification, introduction to NAA and its application
Course Outcomes	**Applied component : Drugs & Dyes USCHDD06**
1	They will come to know the Health and Environmental Hazards of Synthetic Dyes and their Remediation Processes.
2	Effluent Treatment Strategies, Non-textile uses of dyes, Dyes used in food and cosmetics
3	Students will study different types and applications of Paper and leather dyes, Miscellaneous dyes, pigments.

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Faculty of Science

Department of Chemistry

Programme outcomes

PO-1	Students should acquire scientific attitude, problem solving skill and environmental awareness
PO-2	To develop an ability in the creation of Project plan
PO-3	To understand the basic concepts of Chemistry
PO-4	Students should become expertise in their specific subjects and curriculum
PO-5	Students should be able to develop and design the synthesis of organic and Inorganic compounds
PO-6	Students should be able to understand the concept of thermodynamics, chemical kinetics, Bioinorganic chemistry and electro analytical techniques
PO-7	To understand the various experimental methods of chemical analysis by performing practicals in the laboratory.
PO-8	To find the employment in the respective industry and government sector.

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Programme Specific Outcomes (PSO)

Department of Chemistry

PSO-1 To analyse the result of Chemical experiments and use instruments like pH meter, Conductometer, Potentiometer and visible spectrophotometer in chemical analysis.

PSO-2 To learn the techniques of methods of separation like Ion exchange chromatography, steam distillation and gravimetric analysis

PSO-3 To understand the applications of micro scale techniques in Qualitative analysis.

PSO-4 To understand the synthesis of organic and Inorganic compounds.

PSO-5 To understand the concept of stereochemistry, spectroscopy and reaction mechanism

PSO-6 Student will learn the usage of analytical instruments, select, and apply appropriate techniques and resources for the analysis.

PSO-7 Learners will acquire the recent techniques in chemistry.

PSO-8 Students becomes careful about handling of hazardous chemicals and able to perform work with industrial work with responsibility and safety.

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