



SVCR GOVT. DEGREE COLLEGE, PALAMANER



DEPARTMENT OF CHEMISTRY

B.Sc., Programme Outcomes (PO's)

- PO1:** *To produce graduates who excel in the competencies and values required for leadership to serve a rapidly evolving global community.*
- PO2:** *To motivate the students to pursue PG courses in reputed institutes.*
- PO3:** *To learn the fundamental principles and scientific theorems related to basic sciences and their relevance in daily life*
- PO4:** *To kindle the interest for research in students.*
- PO5:** *To acquire placement in educational institutions, engineering and Industrial firms.*

B.Sc., (MPC) Programme Specific Outcomes (PSO's)

At the end of the Programme the student will be able to

- PSO1:** *Interpret the principles, classifications, concepts, theories and mechanisms*
- PSO2:** *Analyze hypothesis, procedures, properties, experimental facts and draw conclusions*
- PSO3:** *Apply techniques in solving problems, results, sample analysis and production.*
- PSO4:** *Discuss the latest trends and applications pertinent to higher studies and employability.*
- PSO5:** *Exhibit communicative competence and apply skills in computers, creative and Critical thinking, interpersonal relationships and managing emotions in real life Situations*

B.Sc., (BZC) Programme Specific Outcomes (PSO's)

At the end of the Programme the student will be able to

- PSO1:** Students will be able to understand the fundamental theories, concepts, and applications in the areas of Botany, Zoology and Chemistry.
- PSO2:** Emphasizes the diversity in the plants and animals, create an awareness of the impact of Chemistry on the environment and society.
- PSO3:** Appraise the significance of Botany, Zoology and Chemistry in day to day life.
- PSO4:** Students get acquainted with skills in the proper handling of instruments & chemicals and hence can function effectively as professionals in the Life Science based industries.
- PSO5:** Develop the ability to explore new areas of research in Chemistry and allied field of Life sciences.

Course Outcomes (CO's)

Course-I: Inorganic and Physical Chemistry

At the end of the course, the student will be able to:

- CO1:** Understand the basic concepts of p-block elements.
- CO2:** Explain the difference between solid, liquid and gases in terms of Intermolecular interactions.
- CO3:** Apply the concepts of gas equations, Ph and electrolytes while studying other chemistry courses.
- CO4:** Understand the basic concepts of qualitative analysis of inorganic mixture. Use glassware, equipment and chemicals and follow experimental procedures in the laboratory.
- CO5:** Apply the concepts of common ion effect, solubility product and concepts related to qualitative analysis.

Course Outcomes with Program Outcomes and Program Specific Outcomes (MPC)

	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	2	2	2	2	2	3	3	2	2	2
CO2	2	3	3	2	2	3	3	2	2	2
CO3	2	2	3	1	2	3	3	3	2	2
CO4	3	2	2	2	2	3	3	2	3	2
CO5	2	2	2	1	2	2	2	2	2	1
Avg.	2.2	2.2	2.4	1.6	2.0	2.8	2.8	2.2	2.6	1.8

(Note: In mapping the number indicates the performance for Poor: 1, Average: 2, Good: 3, Excellent: 4)

Course Outcomes with Program Outcomes and Program Specific Outcomes (BZC)

	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	2	2	2	2	2	3	3	2	2	2
CO2	2	3	3	2	2	3	3	2	2	2
CO3	2	2	3	1	2	3	3	3	2	2
CO4	3	2	2	2	2	3	3	2	3	2
CO5	2	2	2	1	2	2	2	2	2	1
Avg.	2.2	2.2	2.4	1.6	2.0	2.8	2.8	2.2	2.6	1.8

(Note: In mapping the number indicates the performance for Poor: 1, Average: 2, Good: 3, Excellent: 4)

Course-II: Organic & General Chemistry

At the end of the course, the student will be able to:

- CO1:** Understand and explain the differential behaviour of organic compounds based on fundamental concepts learnt. Formulate the mechanism of organic reactions by recalling and correlating the fundamental properties of the reactants involved.
- CO2:** Learn and identify many organic reaction mechanisms including Free Radical Substitution, Electrophilic Addition and Electrophilic Aromatic Substitution.
- CO3:** Correlate and describe the stereo chemical properties of organic compounds and reactions.
- CO4:** Facilitate the learner to make solutions of various molar concentrations. This may include: The concept of the mole; Converting moles to grams; Converting grams to moles; Defining concentration; Dilution of Solutions; Making different molar concentrations.
- CO5:** Learn and identify the concepts of standard solutions, primary and secondary standards.

Course Outcomes with Program Outcomes and Program Specific Outcomes (MPC)

	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	2	3	3	2	2	3	2	2	2	3
CO2	2	2	3	2	2	2	2	2	3	2
CO3	3	3	2	3	2	3	3	2	3	2
CO4	3	3	3	3	2	2	3	3	2	2
CO5	3	3	4	3	3	2	2	2	3	2
Avg.	2.6	2.8	3.0	2.6	2.2	2.4	2.4	2.2	2.6	2.2

(Note: In mapping the number indicates the performance for Poor: 1, Average: 2, Good: 3, Excellent: 4)

Course Outcomes with Program Outcomes and Program Specific Outcomes (BZC)

	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	2	3	3	2	2	2	3	1	2	2
CO2	2	2	3	2	2	3	2	2	2	2
CO3	3	3	2	3	2	3	2	2	3	1
CO4	3	3	3	3	2	2	3	2	2	2
CO5	3	3	4	3	3	2	3	3	2	2
Avg.	2.6	2.8	3.0	2.6	2.2	2.4	2.6	2.0	2.2	1.8

(Note: In mapping the number indicates the performance for Poor: 1, Average: 2, Good: 3, Excellent: 4)

Course-III: Organic Chemistry & Spectroscopy

At the end of the course, the student will be able to:

- CO1:** Understand preparation, properties and reactions of halo alkanes, halo arenes and oxygen containing functional groups.
- CO2:** Use the synthetic chemistry learnt in this course to do functional group transformations.
- CO3:** To propose plausible mechanisms for any relevant reaction.
- CO4:** How to perform common laboratory techniques including reflux, distillation, recrystallization, vacuum filtration.
- CO5:** How to critically evaluate data collected to determine the identity, purity, and percent yield of products and to summarize findings in writing in a clear and concise manner.

Course Outcomes with Program Outcomes and Program Specific Outcomes (MPC)

	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	3	2	3	3	2	3	2	2
CO2	3	2	3	3	2	3	3	4	3	3
CO3	2	3	2	2	3	3	3	3	3	2
CO4	2	2	2	2	2	2	2	2	2	2
CO5	2	3	4	2	3	3	3	2	4	2
Avg.	2.4	2.6	2.8	2.2	2.6	2.8	2.6	2.8	2.8	2.2

(Note: In mapping the number indicates the performance for Poor: 1, Average: 2, Good: 3, Excellent: 4)

Course Outcomes with Program Outcomes and Program Specific Outcomes (BZC)

	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	3	2	3	2	2	3	2	3
CO2	3	2	3	3	2	3	2	3	2	2
CO3	2	3	2	2	3	2	1	2	3	2
CO4	2	2	2	2	2	2	3	2	2	2
CO5	2	3	4	2	3	2	2	3	2	2
Avg.	2.4	2.6	2.8	2.2	2.6	2.2	2.0	2.6	2.2	2.2

(Note: In mapping the number indicates the performance for Poor: 1, Average: 2, Good: 3, Excellent: 4)

Course-IV: Inorganic, Organic and Physical Chemistry

At the end of the course, the student will be able to:

- CO1:** To learn about the laws of absorption of light energy by molecules and the subsequent photo chemical reactions.
- CO2:** To understand the concept of quantum efficiency and mechanisms of photochemical reactions.
- CO3:** Use glassware, equipment and chemicals and follow experimental procedures in the laboratory.
- CO4:** Determine melting and boiling points of organic compounds.
- CO5:** Understand the application of concepts of different organic reactions studied in theory part of organic chemistry.

Course Outcomes with Program Outcomes and Program Specific Outcomes (MPC)

	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	3	2	2	3	3	2	3	3
CO2	3	3	2	2	2	2	3	2	3	2
CO3	3	3	3	2	3	3	3	3	2	2
CO4	2	2	2	2	3	3	3	2	2	2
CO5	3	3	3	3	3	3	2	3	4	3
Avg.	2.8	2.8	2.6	2.2	2.6	2.8	2.8	2.4	2.8	2.4

(Note: In mapping the number indicates the performance for Poor: 1, Average: 2, Good: 3, Excellent: 4)

Course Outcomes with Program Outcomes and Program Specific Outcomes (BZC)

	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	3	2	2	3	2	3	3	2
CO2	3	3	2	2	2	2	2	3	2	2
CO3	3	3	3	2	3	2	2	2	3	2
CO4	2	2	2	2	3	1	3	2	2	2
CO5	3	3	3	3	3	3	2	3	2	3
Avg.	2.8	2.8	2.6	2.2	2.6	2.2	2.2	2.6	2.4	2.2

(Note: In mapping the number indicates the performance for Poor: 1, Average: 2, Good: 3, Excellent: 4)

Course-V: Inorganic and Physical Chemistry

At the end of the course, the student will be able to:

- CO1:** Understand concepts of boundary conditions and quantization, probability distribution, most probable values, uncertainty and expectation values.
- CO2:** Application of quantization to spectroscopy.
- CO3:** Various types of spectra and the IR use in structural determination.
- CO4:** Apply concepts of electrochemistry in experiments.
- CO5:** Be familiar with electro analytical methods and techniques in analytical chemistry which study an analyte by measuring the potential (volts) and/or current (amperes) in an electrochemical cell containing the analyte.

Course Outcomes with Program Outcomes and Program Specific Outcomes (MPC)

	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	2	2	2	2	3	2	2	2	2
CO2	3	2	2	2	2	2	3	3	3	2
CO3	3	3	3	3	3	2	3	3	3	2
CO4	2	2	2	2	2	3	2	3	1	2
CO5	3	3	4	3	4	3	3	3	3	3
Avg.	2.8	2.4	2.6	2.4	2.6	2.6	2.6	2.8	2.4	2.2

(Note: In mapping the number indicates the performance for Poor: 1, Average: 2, Good: 3, Excellent: 4)

Course Outcomes with Program Outcomes and Program Specific Outcomes (BZC)

	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	2	2	2	2	3	2	2	3	2
CO2	3	2	2	2	2	2	3	2	3	3
CO3	3	3	3	3	3	3	3	3	3	3
CO4	2	2	2	2	2	2	1	1	2	2
CO5	3	3	4	3	4	3	3	3	3	3
Avg.	2.8	2.4	2.6	2.4	2.6	2.6	2.4	2.2	2.8	2.6

(Note: In mapping the number indicates the performance for Poor: 1, Average: 2, Good: 3, Excellent: 4)

Course-VI (B): Analytical Methods in Chemistry-1

At the end of the course, the student will be able to:

- CO1:** Identify the importance of solvent extraction and ion exchange method.
- CO2:** Acquire knowledge on the basic principles of volumetric analysis and gravimetric analysis.
- CO3:** Demonstrate the usage of common laboratory apparatus used in quantitative analysis.
- CO4:** Understand the theories of different types of titrations.
- CO5:** Gain knowledge on different types of errors and their minimization methods.

Course Outcomes with Program Outcomes and Program Specific Outcomes (MPC)

	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	2	3	3	2	3	2	3	3	2	2
CO2	3	3	3	3	3	3	3	4	3	2
CO3	3	3	2	4	3	2	3	4	3	2
CO4	3	3	3	3	4	3	3	4	3	2
CO5	3	3	2	3	3	3	2	3	3	2
Avg.	2.8	3.0	2.6	3.0	3.2	2.6	2.8	3.6	2.8	2.0

(Note: In mapping the number indicates the performance for Poor: 1, Average: 2, Good: 3, Excellent: 4)

Course Outcomes with Program Outcomes and Program Specific Outcomes (BZC)

	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	2	3	3	2	3	3	2	3	3	2
CO2	3	3	3	3	3	3	3	3	4	3
CO3	3	3	2	4	3	2	2	2	3	3
CO4	3	3	3	3	4	3	4	3	4	3
CO5	3	3	2	3	3	3	2	2	2	2
Avg.	2.8	3.0	2.6	3.0	3.2	2.8	2.6	2.6	3.2	2.6

(Note: In mapping the number indicates the performance for Poor: 1, Average: 2, Good: 3, Excellent: 4)

Course-VII (B): Analytical Methods in Chemistry-2

At the end of the course, the student will be able to:

- CO1:** Identify the importance of chromatography in the separation and identification of compounds in a mixture.
- CO2:** Acquire a critical knowledge on various chromatographic techniques.
- CO3:** Demonstrate skills related to analysis of water using different techniques.
- CO4:** Understand the principles of spectrophotometry in the determination of metal ions.
- CO5:** Comprehend the applications of atomic spectroscopy.

Course Outcomes with Program Outcomes and Program Specific Outcomes (MPC)

	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	2	3	3	3	3	3	3	3	3	2
CO2	3	3	3	4	3	3	3	3	3	2
CO3	3	3	3	3	4	3	3	4	3	2
CO4	3	3	2	3	3	2	2	3	3	2
CO5	2	2	2	2	2	2	2	2	2	2
Avg.	2.6	2.8	2.6	3.0	3.0	2.6	2.6	3.0	2.8	2.0

(Note: In mapping the number indicates the performance for Poor: 1, Average: 2, Good: 3, Excellent: 4)

Course Outcomes with Program Outcomes and Program Specific Outcomes (BZC)

	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	2	3	3	3	3	3	3	3	3	3
CO2	3	3	3	4	3	3	3	3	3	3
CO3	3	3	3	3	4	3	3	3	3	3
CO4	3	3	2	3	3	2	2	3	3	3
CO5	2	2	2	2	2	2	3	2	2	2
Avg.	2.6	2.8	2.6	3.0	3.0	2.6	2.8	2.8	2.8	2.8

(Note: In mapping the number indicates the performance for Poor: 1, Average: 2, Good: 3, Excellent: 4)