

Practical Plan

Name of the college: Government College of Arts, Science & Commerce, Sanquelim, Goa		
Name of Faculty: Dr. Sudesh M. Morajkar	Subject: Mathematical Aspects and Computers in Chemistry (SEC)	
Paper code: CHC 241	Program: S.Y.BSc.	Division:
Academic year: 2026 - 2027	Semester: III	Total Practical/Labs: 15 (60 hours)
Credits: 1+2		
Course Objectives: - To apply theoretical knowledge for plotting graphs. - To understand the use of computers for calculations and graphical representations.		
Expected Course Outcome: At the end of the course students will be able: CO1: To plot various mathematical functions. CO2: To solve numerical problems in chemistry. CO3: To apply computer software's for data analysis. CO4: To explain the types of orbitals and their shapes. CO5: To identify order of the reaction by graphical method. CO6: To solve numericals from the given data.		
Student Learning Outcome: At the end of the course students will be able: LO1: Demonstrate theoretical knowledge for plotting graphs. LO2: To use computers for calculations and graphical representations.		

Month	Practical/Labs Scheduled Date	No. of Practical /Labs planned	List of Experiments	Reference books
July	03-07-2026	1 (Batch III)	To solve and plot the integrated rate law equations for a. Zeroth order b. First order c. Second order	[1-2]
	10-07-2026	1 (Batch III)	To plot a function and its derivative using Henderson-Hasselbalch equation.	[1-2]
	17-07-2026	1 (Batch III)	To find the critical points in a function using Henderson Hasselbalch equation and characterize them using a. Graphical method b. Derivative method	[1-2]
	24-07-2026	1 (Batch III)	To find the critical points in a radial distribution function for 2s orbital and characterize them using a. Graphical method b. Derivative method	[1-2]
	31-07-2026	1 (Batch III)	Plotting atomic orbitals and finding how shapes of orbitals emerge.	[1-2]
August	07-08-2026	1 (Batch III)	Obtain Mean, Median, Standard deviation from the given data.	[1-2]
	14-08-2026	1 (Batch III)	Numerical problems in logarithmic functions.	[1-2]
	21-08-2026	1 (Batch III)	Demonstration of MS excel for calculations and graphical representations for above experiments 1-6.	[1-2]
	28-09-2026	1 (Batch III)	Demonstration of use of Chemdraw/ Chems sketch for drawing chemical structures.	[1-2]
September	04-09-2026	1 (Batch III)	Graphical representation on Cartesian and spherical polar coordinate.	[1-2]
	11-09-2026	1 (Batch III)	Problem solving on differentiation, partial differentiation.	[1-2]

	18-09-2026	1 (Batch III)	Problem solving on maxima and minima.	[1-2]
	25-09-2026	1 (Batch III)	Repeat	[1-2]

References:

- [1] A. Bahl and G.D. Tuli, Essentials of Physical Chemistry, S. Chand Publication, 2019, New Delhi, 26th edition.
 [2] Puri, Sharma and Pathania, Principles of Physical Chemistry, Vishal Publishing Company, 2018, New Delhi, 1st edition.

* Assessment Rubrics	
Component	Max Marks
ISA	05
Practical	50
Semester End Exam	20