

ANNEXURE-IV (Bridge Course)

Programme: **M.Sc. Chemistry**

Course Code: **CHCB-401 (for Part-I students)**

Title of the course: **Bridge Course in mathematical concepts for chemistry**

Number of Credits: **01** Total Hours: **15** Effective from AY: **2022-23**

<i>Prerequisites for the course:</i>	Should have studied B. Sc. (Chemistry)	
<i>Course Objective:</i>	To introduce mathematical concepts to the students of MSc Part-I (Chemistry).	
<i>Course Outcome:</i>	Students will be able to solve problems based on matrices, determinants and, differential and integral calculus in MSc Chemistry.	
	<i>Content</i>	<i>Hrs</i>
	1. Calculus for thermodynamics and kinetics i. Introduction to Differentiation: Notation, Differentiating various functions, Differentiating a Sum, Product Rule, Quotient Rule, Chain Rule, Partial Differentiation: exact and inexact differentials. ii. Introduction to Integration: Notation, Rules for Integrals, Integrating various functions, Definite and indefinite Integrals.	08
	2. Matrices, Determinants and vector algebra: i. Types of Matrices: Identity, reflection, rotation, inversion, distance matrix, Matrix Algebra, Matrix similarity transformation. ii. The Determinant, Minors and Cofactors, Inverse of a Matrix, Character of a matrix, Linear algebra. iii. Vectors and molecular structure.	07
<i>Pedagogy</i>	Mainly lectures and tutorials. Seminars/assignments/presentations/self-study or a combination of some of these can be used. ICT mode should be preferred. Sessions should be interactive to enable peer group learning.	
<i>Text Books/References / Readings</i>	1. Robert G. Mortimer, Mathematics for Physical Chemistry, Elsevier, 2013, 4 th Ed. 2. James R. Barrante, Applied Mathematics for Physical Chemistry, Prentice-Hall, 1998, 3 rd Ed.	