St. Xavier's College (Autonomous), Ahmedabad
Syllabus of Semester – I of the following departments under Faculty of Arts based on Under Graduate Curriculum Framework - 2023 to be implemented from the Academic Year 2023-24

FACULTY OF ARTS

DEPARTMENT OF ECONOMICS

Course	Title	Content	Hours/week	Credit
Minor-1	Introductory Mathematics for Economics	U-1: Functions and Graphs U-2: Calculus for Economics U-3: Multivariable Calculus U-4: Matrix Algebra	4hrs	4

BA Economics Hons. (SF)

Minor: Introductory Mathematics for Economics

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course Title & Code	Credit Distribution of The Course			Eligibility Criteria	Pre-requisite(s) of the Course (if any)
	Lecture	Tutorial	Practical / Practice		
Introductory Mathematics for Economics	4	0	0	10 + 2 from a recognized board in any stream	Basic Reasoning, Observation & Analytical Skills

ECH-1101- Introductory Mathematics for Economics (4 Credits)

Course Objectives-

- This course provides a foundation in mathematical methods commonly used in economic analysis.
- Topics covered include calculus, linear algebra, optimization techniques, and introductory concepts of dynamic analysis.
- Emphasis is placed on applications in economics.

Unit 1: Functions and Graphs
- Definition of Functions
- Graphs of Functions
- Types of Functions: Linear, Quadratic, Exponential, Logarithmic
- Properties of Functions
- Applications in Economics

Unit 2: Calculus for Economics
- Limits and Continuity
- Derivatives: Rules and Techniques
- Applications of Derivatives in Economics: Marginal Analysis
- Optimization: Maxima and Minima
- Economic Applications of Optimization

Unit 3: Multivariable Calculus
- Partial Derivatives
- Total Differentials
- Optimization with Multiple Variables
- Constrained Optimization
- Applications in Consumer and Producer Theory

Unit 4: Matrix Algebra
- Basic Operations with Matrices
- Determinants and Inverses
- Systems of Linear Equations
- Eigenvalues and Eigenvectors
- Input-Output Analysis

Reference Books:

1) Sydsæter, Knut, Peter Hammond, and Arne Strøm (2012). Essential Mathematics for Economic Analysis.
2) Bradley, Teresa and Paul Patton (2002). Essential Mathematics for Economics and Business.
3) Jacques, Ian (2015). Mathematics for Economics and Business.
4) Simon, Carl P. and Lawrence Blume (1994). Mathematics for Economists.
5) Hoy, Livernois, McKenna, Rees, Stengos (2011). Mathematics for Economics