



Semester II
ECODSC- 151
Elementary Mathematics for Economics
Total Credits: 3
Teaching Hours: 45 hours

Course Description:

This paper is designed to inculcate the basic mathematical skills among students and enables them to study economic theory and its applications at the undergraduate level.

Course outcome:

After completion of the course students would develop sufficient quantitative and analytical skills required for the learning of economic theory and principles at the UG level.

Unit 1: Set and Function

Set and set operations, Venn diagram, Cartesian product, relations; functions and their properties; basic logarithmic, limit of a function, continuity.

Unit 2: Introduction to Linear Algebra: Determinants and Matrix

Determinants and its properties, matrix-types of matrix, matrix operations, transpose of a matrix, scalar products, norms, orthogonality; linear transformations: properties, matrix representations and elementary operations; solution of simultaneous linear equations :matrix inverse method, Cramer's rule, economic applications of matrix algebra.

Unit 3: Differential Calculus – 1 (Single Variable Case)

Basic Rules of differentiation with single explanatory variable, second and higher order derivative, convex and concave function, optimisation problem for function of one variable cases, , economic application of differentiation.

Unit 4: Differential Calculus -2 (Multi-variable case)

Partial and Total Derivative, constraint and Unconstrained Optimisation problem of more than one independent variable, constraint optimisation, Lagrangian multiplier, Hessian determinants, Bordered Hessian determinant, economic application.

Unit 5: Integration of functions:

Basic rules of integration, definite and indefinite integral, application of integration in economics: consumer's surplus, producer's surplus

Suggested Readings:

1. K. Sydsaeter and P. Hammond, Mathematics for Economic Analysis, Pearson Educational Asia: Delhi, 2002
2. Chiang A.C. and K. Wainwright, Fundamental Methods of Mathematical Economics, McGraw Hill International Edition
3. Baruah S.N., Basic Mathematics and its Economic Applications, MacMillan
4. Edward T. Dowling: Schaum's Easy Outline of Introduction to Mathematical Economics