

MATHEMATICAL METHODS FOR ECONOMIC ANALYSIS

Module -1 : Terminology, Concepts and tools

Constants, variables, parameters, intercepts Coefficients-Functions-inverse, general and specific functions-Equations-Applications-Demand and supply functions-Cost and revenue functions-Consumption function-IS & LM functions-Multivariable functions-Market equilibria.

Module -2 : Differential Calculus

Rules of differentiation-slopes-linear and non linear functions-partial derivatives-higher order derivatives-Young's Theorem- Constrained & unconstrained optimization- Lagrangian Multiplier-Interpretation-Use of derivatives in economics –Maximization, minimization, elasticities – Utility function – production function – revenue, cost and profit functions (simple problems).

Module -3 : Integration

Concept-simple rules of integration-application to Consumer's surplus & producer's surplus-Costs & revenues.

Module -4 : Matrices

Fundamentals of linear algebra-matrix, solving equations- Cramer's rule-Uses-Input-output analysis.

Module -5 : Linear Programming

Basic Concepts, formulation of an LP problem-feasible, basic and optimal solution-graphic and simplex methods-formulation of the dual of a programme and its interpretation-Applications of LP technique.

Reference:

1. Allen, R.G.D. (1974), Mathematical Analysis of Economists, Macmillan Press and ELBS, London.
2. Chiang, A.C. (1986), Fundamental Methods of Mathematical Economics, McGraw Hill, New York.
3. Yamane, Taro (1975), Mathematics for Economists, Prentice Hall of India, New Delhi.
4. Baumol, W.J. (1984), Economic Theory and Operations Analysis, Prentice Hall, Englewood Cliffs, New Jersey.
5. Monga, G.S. (1972), Mathematics and Statistics for Economists, Vikas Publishing House, New Delhi.
6. Salvatore, Dominick (1992), Mathematics for Economists, Schaum Series.