MANIPAL UNIVERSITY JAIPUR

School of Arts and Law

Department of Economics
Course Hand-out

Basic Mathematics | EO 1123 | 4 Credits

Session: Jul- Dec 2016 | Faculty: Dr Shilpi Gupta

Course Outcomes: At the end of the course, students will be able to

[1123.1] Define and understand basic mathematical economic terms and concepts.

[1123.2] Understand the linkages among the mathematical economic concepts.

[1123.3] Apply the tools of analysis to predict the economic consequences of various events to fulfil the requirements of present day employers, who demand sound economic skills employability.

[1123.4] Illustrate and interpret the economic outcomes of mathematical tools.

[1123.5] Describe the importance of mathematics in economic research.

A.   SYLLABUS

Basic Algebra: function and slopes, differentiation, Rules of differentiation, higher order differentiation and maxima and minima, nature of curve, Partial and total differentiation, its use in economics, integration-simple and definite, **Application of differential calculus:** Theory of consumers behaviour, utility maximization, Demand Function and elasticity of demand nature of goods and partial elasticity, Theory of production: Cobb-Douglas production function, Euler's Theorem, Consumer's and producer's surplus, Elasticity of substitution, Optimizing behaviour of a firm under Perfect Competition, **Matrix and input-output analysis,** matrix and determinants-use in economics, Static and dynamic Models, Hawkins-Simon conditions for viability, computation of Gross output, **Linear programming and Game theory,** Formulation of a problem, graphical solution only, Game Theory: Two person-Zero Sum Game, saddle point solution only

B.   TEXT BOOKS

- Alpha C Chiang and Kevin Wainwright (2005), Fundamental Methods of Mathematical Economics, McGraw-Hill, 4th Edition.
- B.C. Mehta and G.M.K. Madnani (2008) Mathematics for Economists, S Chand and Sons.
- J.M. Henderson and R.E. Quandt (2000), Microeconomic Theory: A Mathematical Approach (Economic Handbook Series), McGraw-Hill College, 3rd Edition.
- Peter J Hammond (2002), Mathematics for Economic Analysis, Pearson Educational Asia.
- Srinath Barauh (2012), Basic Mathematics and its Application in Economics, Trinity Press Pvt Ltd.