

# **NORTH-EASTERN HILL UNIVERSITY**

**Under Graduate Economics Syllabus Under Semester System as Approved by the  
Academic Council, NEHU on 17-05-2017 (with effect from July 2017)**

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This paper deals with the essential mathematical ideas and tools used for analysing various concepts of economic principles and relations. So it is useful for the students to learn these mathematical tools with applications in analysis of economic phenomenon.

## **Paper – IV**

### **MATHEMATICS FOR ECONOMISTS**

#### **Unit-I**

**Basic Concepts:** Sets, Variables, Relations and Functions, Equations, Identities, Equilibrium condition, Systems of Simultaneous Linear Equations, Homogenous and Homothetic functions, The Straight line and its slope.

#### **Unit-II**

**Matrix and Determinants:** Types of Matrices, Rules of Addition and Multiplication; Determinants: Definition and properties; Solution of Linear Equations: Matrix Inversion Method and Cramer's Rule; Leontief Static Open Model.

#### **Unit-III**

**Differential Calculus:** Concepts of Limit and Continuity; Rules of Differentiation, Partial and Total Differentiation.

#### **Unit-IV**

**Optimization using Differential Calculus:** Maxima and Minima (one variable); Elasticity; Equilibrium of a firm and consumer; Inter-relationships among total, marginal and average costs and revenues.

#### **Unit-V**

**Integration:** Concept, Rules of Integration, Methods of Integration, Integration by parts, Definite Integrals; Consumer's and Producer's surplus.

#### **Suggested Readings:**

Allen, R.G.D (2008), *Mathematical Analysis for Economists*, Macmillan Press, London.  
Chiang, A.C. and K. Wainwright (2013), *Fundamental Methods for Mathematical Economics*, McGraw Hill, New Delhi.  
Hoy, Livernois, McKenna, Rees and Stengos (2011), *Mathematics for Economics*, Mc Graw Hill.  
Sydsaeter, K., P.J. Hammond and A. Strom (2014), *Essential Mathematics for Economic Analysis*, Pearson.  
Taro, Yamane (2012), *Mathematics for Economists: An Elementary Survey (2e)*, Prentice Hall of India, New Delhi.