

Programme: M. A. Economics

Course Code: ECC 115

Title of the Course: Mathematics for Optimisation

Number of Credits: 4

Total Contact Hours:48

Effective from AY: 2018-19

<u>Prerequisites for the course:</u>	Nil	
<u>Objective:</u>	To learn the mathematical tools and concepts that aid in analysing economic optimisation.	Contact Hours
<u>Content:</u>	1. Vectors and Matrices Vectors, Vector Spaces, Linear Dependence, Basis. Elementary operations with Matrices, Equivalence, Determinants, Inverse of Matrix, Rank of a Matrix, Cramer's Rule. Introduction to Input-Output techniques. 2. Functions & Limits: Limit of a function, continuity, Necessary and sufficient conditions. 3. Differentiation Rules of differentiation: Total derivatives and Partial derivatives. Maxima and minima, points of inflexion. 4. Optimisation – Unconstrained & Constrained Application to economics: cost curves, demand curves, Theory of the consumer and Theory of the Firm under Perfect and Imperfect Competition. 5. Integration: Reimann integral, Fundamental Theorem of the calculus, Techniques of integration and Definite integrals. Applications in economics: Theory of the firm (cost) & Growth	16 4 10 10 8
<u>Pedagogy:</u>	10. Chalk and talk aided by power-point lectures 11. PC lab exercises 12. Android based activity 13. Assignments and presentations 14. Group activity 15. MOOC (or similar) Component	
<u>References/Readings</u>	- A.C. Chiang, (1995) Fundamental Methods in Mathematical Economic McGraw Hill, New York - Simon, Carl P. & L. Blume(1994) Mathematics for	

	Economists W.W. Norton, New York • Sydsaeter and Hammond (2004), Mathematics Of Economics Analysis, Pearson.	
<u>Learning Outcomes</u>	By the end of the course, successful students are expected to understand how mathematical concepts aid in understanding optimisation in economics.	