Department	ECONOMICS	Class	I-M.A.	Semester	I
Course Title	Mathematical Methods in Economics	Hours	Credit	CIA	External	Total
Course Code	18P1VMC3	90	4	25	75	100

Objectives
  1. To strengthen the quantitative background of the learner.
  2. To understand the derivatives, partial derivatives, integration and Matrices
  3. To apply the Mathematical methods in Economic analysis.
  4. To gain knowledge about the operations research

Learning Outcome
   Depth knowledge in differentiation, integration and its applications in economics

Unit - I Simple and Partial Differentiation   (18hours)

Meaning – Basic Rules of Simple Differentiation (Addition, Subtraction,Product, Quotient, Exponential &Logarithmic) – Marginal concepts(MU,MC &MR) – Elasticity of Demand – Determination of Equilibrium level of price and output – Utility Maximization – Profit Maximization – Cost Minimization – Partial Differentiation – Basic Rules – second order differentiation.

Unit - II Integration   (18hours)

Meaning – Basic Rules (Addition, Subtraction, Product, Quotient, Exponential & Logarithmic) – Definite Integrals and Indefinite Integrals - Applications in Economics and Business Cost and Revenue functions (TC,AC,MC,TR, AR &MR)– Consumer's Surplus – Producer's Surplus.

Unit - III Matrices   (18hours)

Meaning – Types – Inverse of a square matrix – Cramer's Rule – Input - output analysis - meaning - Assumptions – Uses – Limitations – solving Leontief Input-output system (Two Industries Model) - Simon-Hawkins conditions.

UNIT - IV Assignment Problems and Theory of Games   (18hours)

Meaning – Hungarian Method – Balanced Assignment – Unbalanced Assignment – Maximisation Assignment problem – Two-Person-Zero Sum Game – Pure and Mixed Strategies – Saddle Point solution – Graphical Method (2xm games-mx2 games).

UNIT - V Linear Programming   (18hours)

Meaning – Assumptions – uses - General formulation of LPP – Graphical Method – Simplex Method (using slack variables only).

Text Books

1. Chiang, A.C., "**Fundamental Methods in Mathematical Economics**", 1984, McGraw Hill, New Delhi.

2. Bose D., "**An Introduction to Mathematical Economics**", 2013, Himalaya Publishing House, Mumbai.

References

1.   Mehta and Madani, "**Mathematics for Economists**", 2009, Sultan Chand & Sons, New Delhi.

2.   Allen, R.G.D., , "**Mathematical Analysis for Economics**", 1973, AITBS Publishers, New Delhi.

3. G.S Monga, "**Mathematics and Statistics for Economics**", 2003, Vikas Publishing House Pvt. Ltd., Noida.

4. Kalavathy, S., "**Operations Research**", 2013, Vikas Publishing House Pvt. Ltd., Noida.

Website

1. Michael Klein, "**Mathematical Methods for Economics**", www.amazon.in/Mathematical-Methods-Economics-Addison-Wesley/dp/0201726262