

GUJARAT UNIVERSITY SYLLABUS FOR F.Y BBA

SEMESTER-II CORE COURSE – 112 Business Mathematics

Introduction of Business Mathematics:

The student will understand the mathematical concepts and terminology involved in Derivatives, basic arithmetic operations on vectors and matrices, including inversion and determinants.

Objective : The objective of the course is to introduce the student to the basics in mathematics utilized for pricing of financial derivatives. To provide the student basic understanding of the mathematical ideas and technical tools used in modeling. Prepare students for subsequent work in their business majors and for their future careers in the business community.

Total Sessions: 40 sessions

Total Credits: 3 credits

Module I: 11 Sessions

Derivative and its applications

Introduction, Definition, Derivative of a function of one variable

Derivative of standard functions (e.g. x^n , a^x , e^x , $\log x$) (without proof)

Rules of derivative (Addition, Subtraction, Multiplication, Division, Chain)

Examples

Logarithmic differentiation

Marginal Revenue function, Marginal Cost function, Profit function

Price elasticity of demand and supply

Module II: 9 Sessions

Second order derivative

Introduction, definition and examples of second order derivatives

Maxima and Minima of a function

Applications: Profit, Revenue Maximization and Cost Minimization

Partial derivative and its applications to functions of two variables

Module III: 10 Sessions

Matrix Algebra

Introduction

Types of matrices

Addition and subtraction of Matrices

Multiplication by scalar, Multiplication of two matrices

Inverse of matrix (up to 3x3 matrix using adjoint matrix)

Applications to business problems and solving simultaneous equations up to 3 variables

Module IV: 10 Sessions

Mathematics of Finance

Introduction, simple interest, compound interest

Effective rate of interest
Present value
Annuity
Simple applications

Assignment Topics:

1. Assignment on derivative and its applications
2. Assignment on matrices
3. Assignment on mathematical finance

Seminar Topics:

3. Matrix application in the salary system of an office.
4. Financial project as a part of savings and investment.
5. Use of financial mathematics on personal savings.

Text Books:

3. Business Mathematics: Sancheti and Kapoor
4. Business Mathematics: Kashyap Trivedi and Chirag Trivedi

References:

4. Business Mathematics . (Second Edition) – Qazi Zameeruddin, Vijay K Khanna, SK Bhambri. (Vikas Publication)
5. Business Mathematics –II – J. K. Singh , Deepti Rani. (Himalaya Publishing House)
6. Mathematics for Management An Introduction – M Raghavachari (Tata Mc Graw Hill)