

**KARACHI UNIVERSITY BUSINESS SCHOOL  
UNIVERSITY OF KARACHI**

**BBA-II (Hons.)**

**Course Title : BUSINESS MATHEMATICS – II**

**Course Number : BA (H) - 322**

**Credit Hours : 03**

**Objective**

The objective of this course is to make the students feel comfortable in business environment where there is an increasing use of qualitative analysis. The course emphasizes the application of mathematical techniques to cope up with the modern advancements and orientation according to modern requirements. The today's business students will be the decision maker's tomorrow and shall be better equipped if they are familiar with these concepts. Such familiarity can assist them in being better 'critics' and 'users' and hopefully better decision makers.

**Course Contents**

**1. Introduction to Some Basic Concepts**

- 1.1 Real and Complex Number System
- 1.2 Co-ordinate System in Two Dimensions, Simple Cartesian Curve, Function and Graphs
- 1.3 Limits of Functions and Techniques For Finding Limit
- 1.4 Continuous and Discontinuous Function and Their Graphical Representation
- 1.5 Tangent Line, Secant Line, Normal Line, Slope of Curve and Rules for Finding Them.

**2. Differentiation**

- 2.1 The Chain Rule
- 2.2 Higher Order Derivatives
- 2.3 Differentiation of Logarithmic Functions
- 2.4 Exponential and Trigonometric Functions.

**3. Optimum : Methodology and Application**

- 3.1 Concavity and Inflection Points
- 3.2 Identification of Maxima and Minima
- 3.3 The First and Second Derivative Tests and Critical Points
- 3.4 Curve Sketching and Restricted Domain Consideration
- 3.5 Revenue, cost and profit applications
- 3.6 Marginal Approach to Profit Maximization.

**4. The Integral Calculus**

- 4.1 The Anti Derivative Concept
- 4.2 Rules of Integration
- 4.3 Integration by Parts, Integration of Trigonometric Functions
- 4.4 Differential Equation
- 4.5 Definition, Properties and Application of Definite Integral to Areas – Areas Between Function And X – axis and areas Between Curves.

**5. Linear Programming**

- 5.1 Graphical Solution

- 5.2 Region of Feasible Solution
- 5.3 Corner-Point Method and Application of Linear Programming
- 5.4 The Simplex Method

**6. Transportation Models, Assignments Models**

- 6.1 Solution to Transportation Model and Assignment Model

**Recommended Books:**

1. Frank S. Budnick, "Applied Mathematics for Business Economics and Social Sciences", McGraw Hill, (Latest Edition).
2. Abe Mizrahi and Michael Sullivan, "Mathematics for Business and Social Sciences – An Applied Approach", John Wiley and Sons, (Latest Edition).
3. Michael Lawson and Stephen Hubbard and Paul Pugh, "Maths and Statistics for Business", Longman Singapore Publishers, (Latest Edition).
4. Hoffmann L. D. and Bradley G. L., "Calculus for Business and Social Sciences", McGraw Hill New York, (Latest Edition).