



**Business Mathematics**  
**Business Mathematics**  
**[CORE COURSE]**

**Semester: I**

**Credits: 3**

**Subject Code: BB12005**

**Lectures: 48**

**Course Outcomes:**

At the end of this course the learner will be able to,

- Develop the ability to recall, relate and apply matrices to solve linear system business problems
- Develop the ability to recall, identify and apply permutations and combination to analyze business problems.
- Develop the ability to define the instruments of the equity market ,distinguish types of shares and use them to evaluate various business situations.
- Develop the ability to recall, recognize and apply the concepts of Interest , Annuity, Equated Monthly Installment to evaluate Financial problems
- Develop the ability to recall the concepts of L.P.P , formulate a suitable real-world problem as linear programming problem and solve .
- Develop the ability to comprehend the concept of a Transportation problem and use the concepts to evaluate solution for the same.

**Unit 1: MATRICES AND DETERMINANTS**

08

- Definition of a Matrix, Types of Matrices
- Algebra of Matrices
- Determinant, Adjoint of a Matrix, Inverse of a Matrix using Adjoint Method (Up to 3<sup>rd</sup> order)
- Solution of Linear System of equations using inverse of the coefficient matrix (Up to 2<sup>nd</sup> order)
- Problems based on all above concepts

**Unit 2: PERMUTATION AND COMBINATION**

08

- Factorial Notation
- Fundamental Principle of counting
- Permutation
- Combination
- Elementary problems on Permutation and combination

**Unit 3: SHARES AND DIVIDEND**

06

- Introduction – concept of Shares, Stock Exchange
- Share Capital , Face Value , Market value of a share
- Dividend
- Equity shares , Preferential shares Bonus shares

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- Problems based on all above concepts

#### Unit 4: INTEREST AND ANNUITY

12

- Simple Interest , Compound Interest
- Simple Annuity – Immediate Annuity , Annuity Due
- Equated Monthly Instalment – Interest on reducing balance , Flat rate of interest
- Problems based on all above concepts

#### Unit 5: LINEAR PROGRAMMING PROBLEMS

08

- Meaning of L.P.P.
- Formulation of L.P.P
- Solution of an L.P.P by Graphical Method

#### Unit 6: TRANSPORTATION PROBLEM

06

- Statement and meaning of T.P
- Methods of finding the initial basic feasible solution by:
  - North West Corner Rule
  - Matrix Minimum Method
  - Vogel's Approximation Method
- Simple numerical problems based on above methods

#12 hours for Library work, assignments, practical or field work

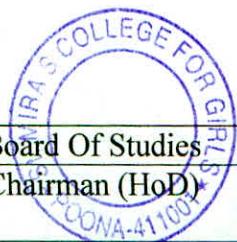
#### Recommended Text Books:

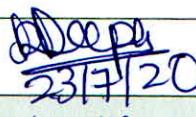
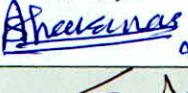
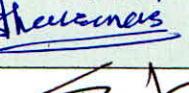
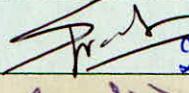
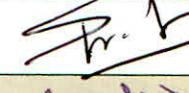
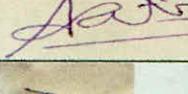
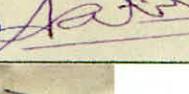
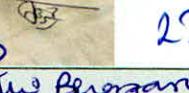
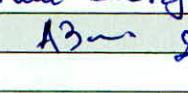
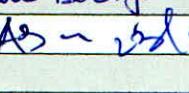
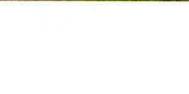
- Rayarikar A. V. and Dixit P. G., *Business Mathematics*, NiraliPrakashan, June 2019

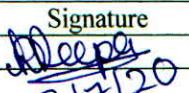
#### Reference Books:

- Dikshit Amarnath , Jitendra Kumar Jain, *Business Mathematics*, Himalaya Publishers, 2009
- Bari, *Business Mathematics*, New Literature Publishing Co
- Sharma S.D, *Operations Research*, KedarNath Ram Nath& Co Publishers; 2012
- Sharma J K, *Operations Research, Theory and Applications*, Macmillan Publishers, 2009

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