| BBA III Year | BBA-C501 | | Semester-V | | |
|---|---|---|---|---|---|
| | Quantitative Techniques for Management | | | | |
| Time Allotted for End Semester Examination | Marks Allotted for Internal Assessment | Marks Allotted for End Term Examination(ESE) | Maximum Marks (MM) | Total Credits | Maximum Hours |
| 3 Hrs. | 30(20+10) | 70 | 100 | 04 | 40 |

| | Course Outcomes: | Mapped Program Outcomes |
|---|---|---|
| **CO.1** | To develop the student's ability to deal with numerical and quantitative issues in business. | **PO.1, PO.3, PO.4, PO.5** |
| **CO.2** | To enable the use of statistical, graphical, and algebraic techniques wherever relevant. | **PO.1, PO.2, PO.3, PO.4, PO.5** |
| **CO.3** | To understand the importance of correlation and regression analysis and application of non-parametric tests in hypothesis testing. | **PO.2, PO.3** |
| **CO.4** | To apply the decision-making process under uncertainty using statistical tools. | **PO.1, PO.3, PO.4** |

- Matrix Algebra: Definition, Matrix Operations- Addition, Subtraction, and Multiplication of matrices, Types of matrices- Square, Diagonal, null, Transpose of a matrix, Determinant of a Square matrix. Co-factor matrix, ad-joint of a matrix, Inverse of a matrix. Solution of simultaneous equation by using matrices.
**(10 hours)**
- Regression Analysis: Meaning, Properties of Regression Coefficient, Methods of regression coefficients, multiple correlation and regression Analysis and significance, Linear Regression, Regression lines (X on Y, Y on X). Chi-square test. **(10 hours)**
- Association of Attributes: meaning, characteristics, Methods of determining associations: comparison of observed and Expected frequency, Methods of comparison of proportion and Yule's coefficients of associations, General methodology of hypothesis testing. One and two-tailed tests. Type I and type II Errors. **(10 hours)**
- Probability Distribution: Meaning, characteristics (Expectation and variance) of Binomial, Poisson, and Normal distribution. Central limit theorem. **(10 hours)**

**SUGGESTED READINGS:**

1. Barry, Render, Ralph, M. & Michael, E., Hanna (2016).*Quantitative analysis for Management* (12th edi). Pearsons India

2. Budnik ,Frank, S., Dennis, Mcleavey & Richard, Mojena (2018). *Principles of Operations Research*. New

3. Jain. K.C. Panddey,M. & Srivastwa , N. (2019). *Quantitative Technique for Management*. New age international publication

4. Sharma, J. K.(2017). *Operations Research.Theories and Applications.* New Delhi: Macmillian India Ltd.

5. Taha, H. A.( 2018). *Operation Research.An Introduction*. NY:Mc.Millan.

6. Vohra, N. D. (2017).*Quantitative Management*. New Delhi: Tata McGraw Hill.

**NOTE:** The list of cases, specific references and books including recent articles will be announced in the class by concerned teachers from time to time.