

## BBA - GE (V) STATISTICS & OPTIMIZATION TECHNIQUES

**Total: 100 Marks**  
**External Evaluation: 75 Marks**  
**Internal Evaluation: 25 Marks**  
**Total Credits: 4**

**Total Pass marks: 3 Marks**  
**Pass marks in external: 26 Marks**  
**Pass marks in internal: 09 Marks**  
**Total L/T/P: 55**

**Objective:** The objective of this course is to acquaint the students with mathematical sciences and learn how to apply this knowledge in areas relevant to business and finance. This subject also helps students develop their competence and confidence in formulating and solving optimisation problems.

Sr. No.	Course Outcome
1	Identify situations in which management science can be used effectively to aid managerial decision-making and planning.
2	Select and apply appropriate techniques to solve particular optimisation problems.
3	Develop analytical skills in applying a scientific approach to structure and solve managerial problems.
4	Develop quantitative skills in using a range of optimization techniques.

### Course Syllabus

#### UNIT- I

Statistics: Meaning, Definition, features, importance, functions, scope and Limitations. Measure of Central Tendency: Mean, Median, Mode and Quartiles. Measures of Dispersion: Range, Quartile Deviation, Mean Deviation and Standard Deviation. Correlation Analysis: Introduction, Types of Correlation, Measurement of Correlation: Karl Pearson's Coefficient of Correlation, Spearman's Rank Correlation.

#### UNIT- II

Basics of Operation Research: Definition, characteristics, phases, scope and limitations of OR. Transportation Problems: Concepts, Methods of Finding Feasible Solutions (N-W Corner Rule, Least Cost Cell, Vogel's Approximation Method), Optimality Tests – Stepping Stone Method and Modified Distribution Method. Assignment Problems: Concepts, Hungarian Technique, Unbalanced Problems, Maximization Problems.

### Recommended Texts:

1. Baruah, Srinath, Basic Mathematics and its Application in Economics, Macmillan India Ltd.
2. Hillier, Fredrick S. and Lieberman, Gerald J., Operations Research, Tata McGraw Hill.
3. Anderson, Sweeney, Williams, An Introduction to Management Science: Quantitative
4. Approach to Decision Making, South Western Cengage Learning. Swarup, K., Gupta, P. K. and Mohan, M., Operations Research, Sultan Chand & Sons.

**Note: Latest edition of the books should be used.**

### Instructions:

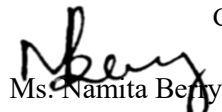
The external paper will carry 75 marks and would be of three hours duration. The question paper will be divided into three sections, i.e., I, II and III, Section I comprise of 4 questions from Unit I of the syllabus and Section II comprises of 4 questions from Unit II of the syllabus. Section III comprises of 9 short questions from entire syllabus. Candidates will be required to attempt two questions each from Section I & II, each question in Section I & II carries 12 marks. Candidates will be required to attempt two questions each from Section I & II, each question in Section I & II carries 10 marks. Candidates will be required to attempt all questions from Section III i.e. 10 questions each carrying 2 marks.

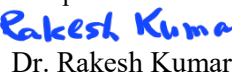
The internal paper will carry 40 marks and it will be distributed as follows:

Two Mid-Semester Tests each carrying 10 marks.

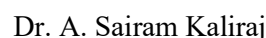
Two Assignments each carrying 6 marks.

Class Participation and Attendance to be of 8 marks.

  
Ms. Namita Berry


  
Dr. Rakesh Kumar

  
Prof. V.K. Kukreja

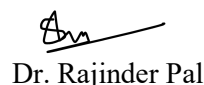
  
Dr. A. Sairam Kaliraj

  
Mr. Sandeep Kumar

  
Ms. Jyoti

  
Ms. Poonam Chawla

  
Ms. Shivdeep Kaur

  
Dr. Rajinder Pal

  
Mr. Sham Bansal