

**Anekant Education Society's
Tuljaram Chaturchand College of Arts, Science and Commerce, Baramati**

Autonomous

Course Structure for S. Y. B. Com. STATISTICS

Semester	Paper Code	Title of Paper	No. of Credits
IV	COMBS2406(D)	Business Statistics-IV	3

Program Outcomes (POs) for B.Com. Programme

PO1	Knowledge and Critical Thinking : Acquire skills in organising, analysing, evaluating and presenting information. Able to analysis issues logically, consider different options and viewpoints, make decisions and act with flexibility, adaptability and creativity.
PO2	Communication Skill : Able to communicate effectively, analyse the concepts and participate in healthy arguments and portray skill in communication and in writing. Possess skills related with banking and other business.
PO3	Independent learning : Demonstrate the ability to acquire knowledge and business skills, the capacity for self directed activity and the ability to work independently.
PO4	Leadership quality : Exhibit qualities associated with leadership such as accountability, integrity, respect, self reflection
PO5	Teamwork: Able to work constructively, cooperatively, effectively and respectfully as part of a team.

S.Y. B.Com.
SEMESTER – IV
PAPER - I
COMBS2406(D): Business Statistics-IV

The main objective of this course is to acquaint students with the basic concepts of concepts, techniques & applications of Statistical Methods and Operations Research

A) Course Objectives:

1. Understand and masters the concepts, techniques & applications of Statistical Methods and Operations Research with real life situations.
2. To make students to understand the art of applying statistical techniques to solve some real life problems
3. To fit the appropriate time series model that can be used.
4. To gain knowledge of Statistical Computations using statistical software.

B) Course Outcomes:

Students should be able to:

- CO1: Learn techniques & applications of Statistical Methods and Operations Research with real life situations.
- CO2: Learn business situations with real life situations.
- CO3: Learn the concept of time series.
- CO4: Analyze the data using time series technique and interpret the results.
- CO5: Application of Statistical Computations using statistical software.
- CO6: Apply timeseries technique in share market.
- CO7. Apply peration techniques in management.

TOPICS/CONTENTS:

1 Time Series:

(14L)

Introduction, Definition, Components of Time Series, The Trend, Seasonal variation , Cyclical variation, Irregular variation, Methods of estimating Trends, Moving averages (with periods 3,4,5), Fitting of trend line and second degree curve, Exponential smoothing, Example and problems

2 Simplex Method:

(12L)

Definition of Linear programming problem , Canonical and standard form duality relation between primal an dual, example and problems on simplex method two iterations only, meaning of unbounded solution, basic feasible solution, alternate solution, degenerate solution

3 Transportation Problem (T.P). / optimization (only minimization):

(14L)

Introduction, balanced and unbalanced TP, Initial Basic Feasible Solution (IBFS) using NWCR, MMM, VAM, Optimal solution using MODI method. Example and problems.

4 Assignment Problem (A.P):

(08L)

Introduction, concept minimization and maximization, Hungarian method example and problems

List of Practicals for Business Statistics

Practical No.	Name of Practical
1	Fitting of Multiple Regression using Excel
2	Vital Statistics using Excel
3	Life Tables using Excel
4	Time Series using Excel
5	Simplex Method using TORA
6	Transportation Problem and Assignment Problem using TORA

Recommended Books :

1. S.P. Gupta - Statistical Methods
2. S.C. Gupta - Fundamentals of Statistics
3. J.S Chandran - Statistics for Business and Economic
4. Dr. A.B. Rao - Quantitative Techniques for Business
5. Business Statistics - S. C. Gupta, Gupta Indra
6. Operation Research - V. K. Kapoor
7. Statistical Methods - S. P. Gupta

Course Outcomes	Program Outcomes				
	PO1	PO2	PO3	PO4	PO5
CO1	3				
CO2		2			
CO3	2				
CO4	3				
CO5			3		
CO6	3				
CO7				2	

Weight: 1 - Partially related 2 - Moderately Related 3 - Strongly related

PO1 Knowledge and Critical Thinking:

CO1: Learn techniques & applications of Statistical Methods and Operations Research with real-life situations.

(Weightage: 3 - Strongly related)

Justification: This CO directly contributes to enhancing critical thinking by requiring students to understand and apply statistical methods and operations research in real-life scenarios, fostering analytical skills.

CO3: Learn the concept of time series.

(Weightage: 2 - Moderately related)

Justification: While understanding time series involves critical thinking, it may not be as directly aligned with knowledge enhancement as CO1. However, the application of time series in real-life situations may require critical thinking skills.

CO4: Analyze the data using time series technique and interpret the results.

(Weightage: 3 - Strongly related)

Justification: This builds on CO3 and requires students not only to understand time series but also to critically analyze and interpret data using this technique, promoting knowledge and critical thinking.

CO6: Apply time series technique in the share market.

(Weightage: 3 - Strongly related)

Justification: Application in the share market involves complex decision-making, linking theoretical knowledge with practical scenarios and fostering critical thinking.

PO2 Communication Skill:

CO2: Learn business situations with real-life situations. (Weightage: 2 - Moderately related)

Justification: Understanding business situations involves gaining insights into real-life scenarios, which contributes to effective communication when discussing or presenting these situations.

PO3 Independent Learning:

CO5: Application of Statistical Computations using statistical software.

(Weightage: 3 - Strongly related)

Justification: Independent learning is promoted as students apply statistical computations using software, requiring self-directed exploration and understanding.

PO4 Leadership Quality:

CO7: Apply operation techniques in management.

(Weightage: 2 - Moderately related)

Justification: Application of operation techniques in management may involve aspects of leadership, but it is not as direct as some other COs in promoting leadership qualities.

PO5 Teamwork:

(No direct mapping to COs)

Justification: The specified COs do not explicitly focus on teamwork; however, collaborative skills may be developed indirectly through group projects or discussions related to statistical methods and business situations.