

STATISTICS
COURSE OUTCOME
&
REFERENCE BOOK

B.COM(Honors)
UNDERNEP-2020

F.Y.B.COM
Semester -I
Statistics: Descriptive Statistics (Major) - Credit 3
Course Outcomes (COs)
On completion of the course, the students will be able to:

CO1	Students can understand the elementary knowledge and fundamental concept in Statistics.
CO2	Articulate the data and its type and summarize information in the data using different Summary measures.
CO3	Students will be able to differentiate between different types of data.
CO4	Learner will get statistical knowledge for government competitive exam
CO5	Compute various measures of Central tendency and Dispersion.

OBJECTIVE

The main objective of this course is to acquaint students with some basic concepts in Statistics. Learner will be introduced to some elementary statistical methods of analysis of data to compute various measures of central tendency and dispersion.

Reference Books:

1.	Goon A.M., Gupta M.K. and Dasgupta B. (2000):	Fundamentals of Statistics, Vol. I & II, 8 th Edn. The World Press, Kolkata.
2.	Miller , Irwin and Miller, Marylees (2006):	John E. Freund's Mathematical Statistics With Applications, (7 th Edn.), Pearson education. Asia.
3.	Mood, A.M. Graybill, F.A. And Boes , D.C. (2007):	Introduction to the theory of Statistics, 3 rd Edn.,(Reprint), Tata McGraw –Hill Pub. Co. Ltd.
4.	Pavate D.C. Bhagwat	The Element Calculus : Popular Prakashan, Bombay
5.	Gupta S.P	Statistical Method : S. Chand & Co., New Delhi
6.	Rohtgi V.K.	An Introduction to probability theory and mathematical statistics : Wiley EstemLtd.
7.	S.C. Gupta & V.K. Kapoor	Fundamentals of Mathematical Statistics : S. Chand & Co., New Delhi
8.	Proff. H.D. Shah	ગુણગુણિતકાંક્ષાશાસ્ત્ર™, ઊંચાનવસર્ણ, થાનમણાણબોસ- અમદાવાદ , Zજરત

F.Y.B.COM
Semester -I
Statistics: Statistics-I (Minor) - Credit 3
Course Outcomes (COs)

On completion of the course, the students will be able to:

CO1	They will be able to find linear relation between independent and dependent variables. Using linear function deciding whether the function is decreasing or increasing. Finding slope and intercept of a linear function. Finding population change from a linear function.
CO2	Using linear function deciding whether the function is decreasing or increasing. Finding slope and intercept of a linear function. Finding population change from a linear function.
CO3	<i>Set theory widely used in Statistics, Physics, Number Theory, Group theory, Probability, Engineering, Biology and Chemistry.</i>
CO4	A permutation is used for the list of data (where the order of the data matters)
CO5	The combination is used for a group of data (where the order of data doesn't matter)

OBJECTIVES

- ❖ **Applications of linear equation are useful to estimate value of dependent variable for given value of independent variable.**
- ❖ **Various uses of function in economics, industry, business and social science.**
- ❖ **Set theory widely applicable for solving real life problem of probability, mathematics biology, engineering, biology and chemistry.**
- ❖ Permutations are studied in almost every branch of mathematics. They also appear in many other fields of science. In computer science they are used for analyzing sorting algorithms, in quantum physics for describing states of particles and in biology for describing RNA sequences.
- ❖ Combinations are studied It also appear in many other fields of science. In computer science they are used for analyzing sorting algorithms, in quantum physics for describing states of particles, and in biology and useful for solving real life problems.

Reference Books

1.	Robert R. Stoll 1 October 1979	Set Theory and Logic (Dover Books on Mathematics) Paperback – 1 October 1979
2.	CHARLES C. PINTER (2014)	A Book of SET THEORY , DOVER PUBLICATIONS, INC. Mineola, New York
3.	Robert R. Stoll	Linear Algebra and Matrix Theory (Dover Books on Mathematics) Kindle Edition
4.	Steve Warner(2018)	Pure Mathematics for Beginners: A Rigorous Introduction to Logic, Set Theory, Abstract Algebra, Number Theory, Real Analysis, Topology, Complex Analysis, and Linear
		Algebra Paperback – 25 September 2018
5.	<u>B J VENKATACHALA</u> (2020)	Functional Equations Revised & Updated 2nd Ed (9788172867812) Paperback – 1 January 2020
6.	<u>Hari Kishan</u>	Theory Of Equations Paperback – 13 July 2022
7.	Ramesh Chandra	Permutation And Combinations. Notion Press Media Pvt Ltd
8.	Richard A. Brualdi	INTRODUCTORY COMBINATORICS, 5TH EDITION Paperback – 18 July 2019
9.	Karmel P.H.(1963)	Applied Statistics for Economics, 2 nd ed.

F.Y.B.COM
Semester -II
Statistics: Statistical Methods for Social Science (Major) - Credit 3
Course Outcomes (COs)

On completion of the course, the students will be able to:

CO1	Students will be able to understand difference between variables and attributes.
CO2	Students will be able to understand relation between two variables and attributes.
CO3	They will also be able to solve problems to find relation between two Variables and attributes.
CO4	Students will be able to understand basic concepts of time series
CO5	Analyze different types of trends

OBJECTIVE

The main objective of this course is to acquaint students with relationship between two variables and two attributes. Learner will be introduced to some statistical methods of analysis of data 1) To compute the correlation coefficient for bivariate data 2) Fitting of regression curve 3) Studying qualitative data 4) Computing various indices and their interpretation.

Reference Books:

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|---|---|
| 1. Hooda, R.P | Statistics for business and economics; Macmillan. New Delhi. |
| 2. Kendall M.G.(1976) | Time series, Charles Griffin |
| 3. Goon A.M., Gupta M.K. and Dasgupta B. (2000): | Fundamentals of Statistics, Vol. I & II, 8 th Edn. The World Press, Kolkata. |
| 4. Mood, A.M. Graybill, F.A. And Boes , D.C. (2007) | Introduction to the theory of Statistics, 3 rd Edn.,(Reprint), Tata McGraw –Hill Pub. Co. Ltd. |
| 5. Gun. A.M.Gupta, M.k. and Dasgupta.B.(2008) | Fundamental of Statistics, Vol. II, 9th Edition World press. |
| 6. YaLun Chou | Statistical analysis with business and economics application, Holl; Rinehart &Winster. New York. |
| 7. Hole & Jessen | Basic Statistics for business and economics: John Wiley and Sons, New York |

F.Y.B.COM
Semester -II
Data Collection Methods (Minor) - Credit 3
Course Outcomes (COs)

On completion of the course, the students will be able to:

CO1	Understand about how to collect Data using different data collection methods.
CO2	Understand the process of data collection and its use in research/project work.
CO3	Understand about how to code and decode the data and how to use it using questionnaire so that they can easily enter the data in to different statistical softwares.
CO4	Represent the data using diagrams and graphs to present the data before laymen.
CO5	Develop the skills about different descriptive statistics for different measures of scale which will help them for further research work.

OBJECTIVE

The main objective of this course is to acquaint students with different data collection methods and its process in research and project work. Students can be developed their skill about different diagram and Graphs and also will be able to understand the ideology about suitable graphs. The purpose of this course is to give some essence of measures of central tendency and dispersion based on different scale so that they can get some idea about when a particular measure can be used.

Reference Books:

1.	Hooda, R.P	Statistics for business and economics; Macmillan. New Delhi.
2.	Dr. S.S. Chaudhary, Dr. Madhu Gupta, Dr. Govind Singhal, Dr. Sanjay Jain	DESCRIPTIVE STATISTICS -Text Book For B.Sc , M.Sc , Ph.D & Other Research Purpose in Statistics
3.	Goon A.M., Gupta M.K. and Dasgupta B. (2000):	Fundamentals of Statistics, Vol. I & II, 8 th Edn. The World Press, Kolkata.
4.	Dr. M. H. Lohgaonkar	Descriptive Statistics-I
5.	Gun. A.M.Gupta, M.k. and Dasgupta.B.(2008)	Fundamental of Statistics, Vol. II, 9th Edition World press.
6.	S.P. Gupta, M.P. Gupta	Business Statistics 18 th Edition
7.	Hole & Jessen	Basic Statistics for business and economics: John Wiley and Sons, New York
8.	P. Sundara Pandian, S. Muthulakshmi, T. Vijaykumar	Research Methodology & Applications of SPSS in Social Science Research

S.Y.B.COM
Semester -III
Statistics Paper I: Mathematics for Statistics (Major Paper 1) - Credit 3
Course Outcomes (COs)

On completion of the course, the students will be able to:

CO1	Understand the basic concept of differentiation and also will be able to apply it in economics.
CO2	Understand relation the basic concept of integration and also will be able to understand the difference between differentiation and integration.
CO3	Solve problems of maximizing profit and minimizing loss.
CO4	Understand basic concepts of matrices and determinants and also will be able to apply the concept of matrix in real life practical problem.
CO5	Apply the course content for the further study of statistics.

OBJECTIVE

The main objective of this course is to provide fundamental knowledge of differentiation, integration and matrices to the students and also to give them practical knowledge so that they can utilize for the real life problem.

Reference Books:

1.	Parvate D.C. Bhagwat	The element of Calculus: Popular Prakashan, Bombay
2.	Allen R.G.D	Basic mathematics: Macmillan, New Delhi
3.	J.K. Sharma	mathematics for business & Economics, Asian Books private Ltd.
4.	Soni. R.S.	Business mathematics , Pitamber Publishing House
5.	Kapoor. V.K	Business mathematics: sultan Chand & Sons, Delhi
6.	Holden	Mathematics for business and economics: Macmillan India. New Delhi.
7.	S.C.Gupta	“Fundamentals of Mathematical Statistics” S. Chand , New Delhi.
8.	GorakhPrasad	Differential calculus, Pothishala Pvt. Ltd., Allahabad (14 th Edition-1997).

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Semester -III
Statistics Paper I: Numerical Analysis (Major Paper 2) - Credit 3
Course Outcomes (COs)

On completion of the course, the students will be able to:

CO1	Understand the advance concept of finite difference and interpolation for both equal and unequal intervals.
CO2	Understand relation between numerical differentiation and integration.
CO3	Understand Newton Forward and Backward method and its application.
CO4	Understand basic concepts of finding roots and the methods of finding roots.
CO5	Apply the course content for the further study of statistics.

OBJECTIVE

The main objective of this course is to provide fundamental knowledge of finite difference, interpolation, numerical differentiation, numerical integration and iterative methods of finding roots and its procedures. The students should be able to understand the concept so that they can use it for the real life practical problem.

Reference Books:

1.	Shastri, S.S	Introductory methods of Numerical Analysis; Prentice Hall of India
2.	Jain, M.K., Iyengar, S.R.K. and Jain, R.K	Numerical methods for scientific and Engineering Computations; Age International (P.) Ltd.
3.	Froberg, C. E	Introduction to Numerical Analysis, Addition Wesley, Reading Mass.
4.	Gupta and Kapoor	Fundamentals of mathematical statistics
5.	H. Freeman	Finite difference for actual sciences.
6	Stanton R. G	Numerical Methods for Science and Engineering Prentice Hall of India.

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Semester -III

Statistics Paper I: Statistics for Business Decision (Multi-disciplinary Paper-I) - Credit 3
Course Outcomes (COs)

On completion of the course, the students will be able to:

CO1	Understand the basic concept of probability and its uses for advance study.
CO2	Understand the basic idea about how to utilize the concept of probability to find expected value of a random variable.
CO3	Understand basic concept of probability distribution and its application.
CO4	Understand basic terminology about discrete and continuous variable.
CO5	Apply the course content for the further study of statistics.

OBJECTIVE

The main objective of this course is to provide fundamental knowledge of probability, mathematical expectation and use of probability distribution. The purpose is to make the students aware about the concept of probability and its application in mathematical expectation and probability distributions.

Reference Books:

1. Hogg. R.V. Tannis, E.A. Probability and Statistical Inference Seventh Ed, Pearson Education, and Rao J.M(2009): New Delhi.
2. Miller, Irwin and Miller John E. Freund's Mathematical Statistics with Applications(7th Edn.),Pearson Education, Asia.
3. Myer, P.L.(1970) Introductory Probability and Statistical Application, Oxford &IBH Publishing , New Delhi

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Semester -IV
Statistics Paper III: Mathematical Statistics (Major Paper III) - Credit 3
Course Outcomes (COs)

On completion of the course, the students will be able to:

CO1	Understand the basic concept of Random variable, P.M.F. and P.D.F.
CO2	Understand the concept of moments and its further uses.
CO3	Understand about Moment generating function.
CO4	Understand basic terminology of m.g.f. for discrete and continuous probability distribution.
CO5	Apply the course content for the further study of statistics.

OBJECTIVE

The main objective of this course is to provide fundamental knowledge of random variable, moments, moment generating function The purpose is to make the students aware about the concept of p.m.f. and p.d.f. and its application.

Reference Books:	
1.	Hogg. R.V. Tannis, E.A. and Rao J.M(2009): Probability and Statistical Inference Seventh Ed, Pearson Education, New Delhi.
2.	Miller, Irwin and Miller ,Marylees(2006): John E. Freund's Mathematical Statistics with Applications(7th Edn.),Pearson Education, Asia.
3.	Myer, P.L.(1970) Introductory Probability and Statistical Application, Oxford &IBH Publishing , New Delhi
4	S.C.Gupta Fundamentals of Mathematical Statistics” S. Chand , New Delhi.
5	Goon A.M., Gupta M.K. and Dasgupta B. (2000): Fundamentals of Statistics, Vol. I & II, 8 th Edn. The World Press, Kolkata.

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Semester -IV
Statistics Paper IV: Mathematical Economics (Major Paper-IV) - Credit 3
Course Outcomes (COs)

On completion of the course, the students will be able to:

CO1	Understand the basic concept of mathematical economics.
CO2	Understand the concept of multiple and partial correlation.
CO3	Understand the concept of multiple regression for three variables.
CO4	Understand about the properties of correlation and regression.
CO5	Apply the course content for the further study of statistics.

OBJECTIVE

The main objective of this course is to provide fundamental knowledge of mathematical economics, multiple and partial correlation and multiple regression. The purpose is to make students aware about utility of the statistical concepts for real life problems.

Reference Books:

Hogg & Craig	Mathematical Statistics
J.K.Goyal, B.K.Saksena	Mathematical economics
Goon A.M., Gupta M.K. and Dasgupta B. (2000):	Fundamentals of Statistics, Vol. I & II, 8 th Edn. The World Press, Kolkata.

S.Y.B.COM
Semester -III

Statistics for Business (Minor- Paper-I)

Course Outcomes (COs)

On completion of the course, the students will be able to:

CO1	Understand the basic concept of limit.
CO2	Understand the concept of differentiation.
CO3	Understand the concept of stationary value to optimize the function.
CO4	Understand the relation between skewness and kurtosis.
CO5	Apply the course content for the further study of statistics.

OBJECTIVE

The main objective of this course is to provide fundamental knowledge of limit, differentiation and skewness and kurtosis. The purpose is to make students aware about the application of statistical tools for the real life problems.

Reference Books:

1.	Parvate D.C. Bhagwat	The element of Calculus: Popular Prakashan, Bombay
2.	Allen R.G.D	Basic mathematics: Macmillan, New Delhi
3.	J.K. Sharma	mathematics for business & Economics, Asian Books private Ltd.
4.	Soni. R.S.	Business mathematics , Pitamber Publishing House
5.	Kapoor. V.K	Business mathematics: sultan Chand & Sons, Delhi
6.	Holden	Mathematics for business and economics: Macmillan India. New Delhi.
7.	S.C.Gupta	“Fundamentals of Mathematical Statistics” S. Chand , New Delhi.
8	GorakhPrasad	Differential calculus, Pothishala Pvt. Ltd., Allahabad (14 th Edition-1997).

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Semester -IV

Statistics for Business (Minor- Paper-II)

Course Outcomes (COs)

On completion of the course, the students will be able to:

CO1	Understand the basic concept of demography and life table.
CO2	Understand the concept of mortality.
CO3	Understand the concept of sampling and designing of sample survey.
CO4	Understand the relation importance of demography in real life.
CO5	Apply the course content for the further study of statistics.

OBJECTIVE

The main objective of this course is to provide fundamental knowledge of demography, life table, and mortality, fertility, sampling and designing of sample survey. The purpose is to make students aware about the application of vital statistics for insurance and other sectors and use of sampling in research.

Reference Books:

Barkley G.W/(1958)	"Techniques of population analysis " John Wiley & Sons Inc First Ed
Pathak K.B and F. Ram (1998)	"Techniques of Demographic Analysis " 2nd Ed, Himalaya Publishing House
Cox P.R	"Demography " Cambridge University Press
D.C.Sanchaeti and V.K.Kapoor	Statistics (theory , Method and Application) Sultan Chand & Son
D N Elhance	Fundamental of Statistics

S.Y.B.COM
Semester -IV

Statistics Paper II: Industrial Statistics (Multi-disciplinary Paper-II) - Credit 3

Course Outcomes (COs)

On completion of the course, the students will be able to:

CO1	Understand the basic concept of process control.
CO2	Understand the concept of product control.
CO3	Understand the concept of testing of hypothesis.
CO4	Understand the use of hypothesis for large sample.
CO5	Apply the course content for the further study of statistics.

OBJECTIVE

The main objective of this course is to provide fundamental knowledge of process control, product control and testing of hypothesis. The purpose is to make students aware about the application of statistical techniques for research.

Reference Books:

1.	Hogg. R.V. Tannis, E.A. and Rao J.M(2009)	Probability and Statistical Inference Seventh Ed, Pearson Education, New Delhi
2.	Miller, Irwin and Miller, Marylees(2006)	John E. Freund's Mathematical Statistics with Applications (7th Edn.)Pearson Education, Asia.
3.	Myer, P.L.(1970)	Introductory Probability and Statistical Application, Oxford &IBH Publishing, New Delhi
4.	Montgomery D.C. (2009)	Introduction to statistical Quality Control, 6th Edition, Wiley India Pvt. Ltd.
5.	Grant E.L (1964)	Statistical Quality Control: McGraw Hill.
6.	Duncan A. J. (1974)	Statistical Control and Industrial Statistics: Taraporewala and son.
7.	Gun.A.M.Gupta, M.k.andDasgupta.B.(2008)	Fundamental of Statistics, Vol. II, 9th Edition World press.

T.Y.B.COM
Semester -V
Statistics Paper V: Statistical Inference (Major Paper-V) - Credit 3
Course Outcomes (COs)

On completion of the course, the students will be able to:

CO1	Understand the basic concept of estimation.
CO2	Understand the properties of good estimators.
CO3	Understand the methods of estimation.
CO4	Understand the concept of interval estimation.
CO5	Apply the course content for the further study of statistics.

OBJECTIVE

The main objective of this course is to provide fundamental knowledge of estimation, methods of estimation and interval estimation. The purpose is to make students aware about the application of estimation to find interval of a population parameter.

Reference Books:		
1.	H.A.Taha	Operation Research, Macmillian Publishing CO.1999
2.	Goon A.M., Gupta M.K. and Dasgupta B. (2000):	Fundamentals of Statistics, Vol. I & II, 8 th Edn. The World Press, Kolkata.
3.	Elhance D.N. (1986)	Fundamental of Statistics , Kitab Mahal Ahmadabad
4.	Johnsons, N.L.andKotz, S. (1977)	Distributions in Statistics, John Wiley.
5.	Ferguson, T. (1967):	Mathematical Statistics ; Academic Press
6.	Jaiswal, M. C. (1973)	Statistical Distributions; Guj. Uni. Book Pub. Board, Ahmedabad.
7.		
	Rohatgi, V.K. (1984)	Introduction to Probability Theory and Mathematical Statistics; Wiley Eastern.

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Semester -V
Statistics Paper VI: Sampling Theory (Major Paper-VI) - Credit 3
Course Outcomes (COs)

On completion of the course, the students will be able to:

CO1	Understand the basic concept of sampling.
CO2	Understand the concept of simple random sampling for with and without replacement cases.
CO3	Understand the concept of stratified random sampling.
CO4	Understand the concept of systematic sampling.
CO5	Apply the course content for the further study of statistics.

OBJECTIVE

The main objective of this course is to provide fundamental knowledge of sampling, simple random sampling, stratified sampling and systematic sampling. The purpose is to make students aware about the application of sampling in research.

Reference Books:

Cochran W.g. (1984): Murthy M.N.(1977)	Sampling Techniques(3rd Ed.) Wiley Eastern Sampling theory & Statistical Methods, Statistical Pub. Society, Calcutta.
Sukhatme .P.V.et,al (1997)	"Sampling Theory of surveys with Application " III-Ed , The Iowa state Univ Press, Ames, Iowa USA and Indian Society of Agriculture Statistics , New Delhi
Yates F. (1960)	Sampling Methods in censuses and surveys Ed-III Charles Griffin &Co.Ltd London
Hansen M.H.et al (1993)	Sample survey Methods and Theory . Willey blackwell : Volume 1 edition

VEER NARMAD SOUTH GUJARAT UNIVERSITY SURAT
(SYLLABUS EFFECTIVE FROM ACADEMIC YEAR 2023-24 AND ONWARDS)
T.Y.B.COM SEM -V

Statistics Paper III: Statistical Inferential Techniques for Decision (Multi disciplinary Paper-III) - Credit 3

Course Outcomes (COs)

On completion of the course, the students will be able to:

CO1	Understand the basic concept of decision theory.
CO2	Understand the concept of small sample test.
CO3	Understand the concept of F-distribution.
CO4	Understand the concept of Fisher's Z transformation.
CO5	Apply the course content for the further study of statistics.

OBJECTIVE

The main objective of this course is to provide fundamental knowledge of decision theory, small sample test and F-distribution. The purpose is to make students aware about the application of decision theory and small sample test for real life research problem.

Reference Books:

Raiffa H.&Schlaifer R, Montgomery D.C., John Wiley, 1991	Applied statistical decision theory, MIT press, 1968 design and analysis of experiments
Goon A.M., Gupta M.K., & Das Gupta B	Fundamentals of statistics , World press, Kolkata, 1991
ElhanceD.N	Fundamentals of statistics , Kitab Mahal, Allahabad, 1986

T.Y.B.COM
Semester -VI

Statistics Paper VII: Population Studies (Major Paper-VII) - Credit 3
Course Outcomes (COs)

On completion of the course, the students will be able to:

CO1	Understand the basic concept of demography
CO2	Understand application of life table in insurance sector.
CO3	Understand the concept of mortality.
CO4	Understand the concept of population estimates and its projection.
CO5	Apply the course content for the further study of statistics.

OBJECTIVE

The main objective of this course is to provide fundamental knowledge of demography, mortality and population estimates and its projection. The purpose is to make students aware about the application of demography in social science.

Reference Books:

Barkley G.W/(1958)	"Techniques of population analysis " John Wiley & Sons Inc First Ed
Pathak K.B and F. Ram (1998)	"Techniques of Demographic Analysis " 2nd Ed, Himalaya Publishing House
Cox P.R	"Demography " Cambridge University Press

T.Y.B.COM
Semester -VI
Statistics Paper VIII: Optimization Techniques (Major Paper-VIII) - Credit 3
Course Outcomes (COs)

On completion of the course, the students will be able to:

CO1	Understand the basic concept of PERT
CO2	Understand the basic concept of CPM.
CO3	Understand the concept of deterministic EOQ model.
CO4	Understand the concept of queuing theory and replacement models.
CO5	Apply the course content for the further study of statistics.

OBJECTIVE

The main objective of this course is to provide fundamental knowledge of PERT/CPM, deterministic EOQ model and queuing theory and replacement models. The purpose is to make students aware about the application of advanced statistical techniques for real life problem.

Reference Books:

S D Sharma	Optimization technique,
Swarupkanti, Gupta, P.K.	Operations Research, 13th Edition, Sultan Chand and Sons.
And Manmohan(2007):	
Tanha, H. A. (2007):	Operation Research: An Introduction, 8th Edition, And Prentice Hall of India.
GassS.I	Linear Programming and Application McGraw Hills,1975

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(SYLLABUS EFFECTIVE FROM ACADEMIC YEAR 2023-24 AND ONWARDS)**

T.Y.B.COM SEM -VI

Statistics Paper IV: Advanced Statistics (Multi disciplinary Paper-IV) - Credit 3

Course Outcomes (COs)

On completion of the course, the students will be able to:

CO1	Understand the basic concept of Non parametric inference.
CO2	Understand the basic concept of operations research.
CO3	Understand the concept of Assignment problems.
CO4	Understand the concept of Transportation problems.
CO5	Apply the course content for the further study of statistics.

OBJECTIVE

The main objective of this course is to provide fundamental knowledge of Non parametric test, assignment problems and transportation problems. The purpose is to make students aware about the application of non parametric test and different operations research techniques for real life examples.

Reference Books:

H.A.Taha, Macmillan Publishing Co., 1999	Operations research 6 th edition
Gass S.I., McGraw hills, 1975	Linear programming methods
S.D. Sharma, Kedarnath Ramnath & Co., Meerut	Operation research
Gibson J.E., McGraw Hills	Non-parametric methods
Sidney Seigal, McGraw Hills	Non-parametric Methods for Behavioral sciences

T.Y.B.COM (Honours)
Semester -VII

Advanced Statistics –I: Design of Experiments (Major Paper-I) - Credit 3

Course Outcomes (COs)

On completion of the course, the students will be able to:

CO1	Understand the basic concept of design of experiments.
CO2	Understand the basic concept of CRD.
CO3	Understand the concept of RBD and LSD.
CO4	Understand the concept of factorial experiments.
CO5	Apply the course content for the further study of statistics.

OBJECTIVE

The main objective of this course is to provide fundamental knowledge of CRD, RBD, LSD and factorial experiments. The purpose is to make students aware about the application of design of experiments and factorial experiments for real life agricultural problems.

Reference Books:

Cochran, W. G. and Cox, G.M. (1959)	Experimental Design. Asia Publishing House.
Das, M.N. and Giri, N.C. (1986)	Design and Analysis of Experimental. Wiley Eastern Ltd.
Goon, A. M., Gupta, M.K. and Dasgupta, B. (2005)	Fundamentals of Statistics. Vol. II, 8th Edn. World Press, Kolkata.
Kemphorne, O. (1965)	The Design and Analysis of experiments, John Wiley
Montgomery, D. C. (2008)	Design and Analysis of experiments, John Wiley.

