



Abeda Inamdar Senior College

Of Arts, Science and Commerce, Camp, Pune-1

(Autonomous) Affiliated to SavitribaiPhule Pune University

NAAC accredited 'A' Grade

S.Y.B.Sc Statistics

(CBCS – AUTONOMY 21 PATTERN)

STRUCTURE OF S. Y.B.SC. STATISTICS

Structure of the course for three years and the pattern of examination and question papers are as specified below

Semester	Paper code	Paper	Paper title	Credits	Marks		
					CIA	ESE	Total
3	21SBST231	I	Discrete Probability Distributions And Time Series	2	20	30	50
	21SBST232	II	Continuous Probability Distributions	2	20	30	50
	21SBST233	III	Statistics Practical I	2	20	30	50
4	21SBST241	I	Tests of Significance, Statistical Methods And Demography	2	20	30	50
	21SBST242	II	Sampling Distributions And Exact tests	2	20	30	50
	21SBST243	III	Statistics Practical II	2	20	30	50

CONTINUOUS INTERNAL EVALUATION (CIE) FOR B.Sc

For Continuous Internal Evaluation (CIE), Evaluation will be done continuously. Internal assessment will be of **20** marks for a paper of 50 Marks. These 20 marks are divided as follows:

- a) There will be compulsory Test on Demand MCQ Examination of **20** marks of each subject which would be converted into **05 Marks**.
- b) Two Class Tests 10 Marks Each. Converted to 05 Marks.
- c) Mid Sem Exam of 20 Marks converted to 05 Marks
- d) Participation in two activities at department/ college level 05 Marks
- e) In case of students failing to score under category (d), the attendance can be considered to give marks.
- f) There will be a compulsory Mock Practical Examination, Viva Voce of subjects mentioned in for **20 Marks**.
- g) The subject teacher will need to adopt anyone out of the following methods for internal assessment:

Table 7: Methods of Internal Assessment

Written exam	Quiz
Presentations	Projects
Assignments	Tutorials
Oral examination	Open Book Test and Others

- 1) **DURATION OF SEMESTER END EXAMINATION (FINAL):** Question papers will be set for Thirty Marks (One and Half Hour Duration) for Theory and Thirty Marks (Three and Half Hour) for Practical Examination.

Table 8: Criteria for Paper Setting of Internal Assessment and Semester End Examination

Knowledge based questions	Understanding based questions	Applications, Analysis, Problem Solving questions	Total Marks
50%	25%	25%	100%

- 2) **STANDARD OF PASSING:**

- A student must obtain a minimum of 40% marks in Continuous Internal Evaluation (CIE), and minimum 40% marks in Practical Examination and Semester End Examination (External Examination).

- Passing separately in Internal Assessment, Practical Examination and Semester End Examination is compulsory.
- The student has to secure at least 40 marks (40%) in the total assessment (50 Marks) for each subject.
- Students who are failed in Continuous Internal Evaluation (CIE) of any semester can reappear for the same in the next semester.

PAPER-WISE DETAILED SYLLABUS

Course/ Paper Title	DISCRETE PROBABILITY DISTRIBUTIONS AND TIME SERIES
Course Code	21SBST231
Semester	III
No. of Credits	2 (2 Units equivalent to 1 Credit)

Aims & Objectives of the Course

Sr. No.	Objectives
1.	To enrich students' knowledge and train them in pure Statistics.
2.	To identify the appropriate probability model that can be used.
3.	To fit various discrete and continuous probability distributions and to study various real life situations
4.	To use forecasting and data analysis techniques in case of univariate and multivariate data sets.
5.	To use statistical software packages.
6.	To test various hypotheses of significance like means, proportions, independence of attributes, variance etc. included in theory (using calculators, software).

Expected Course Specific Learning Outcome

Sr. No.	Learning Outcome
1.	Students will be acquainted with the different areas of Statistics
2.	Students will become aware about the role of Statistics in various

	real life situations.
3.	Students will be acquainted with the data analysis tools and use of statistical softwares and interpret the results.

SYLLABUS

Unit No	Title with Contents	No. of Lectures
Unit I	Negative Binomial Distribution	07
	1. Introduction to negative binomial distribution, Probability mass function (p.m.f.), Graphical nature of p.m.f.,	1
	2. Negative binomial distribution as a waiting time distribution,	1
	3. Moment generating function (MGF),	1
	4. Mean, variance, additive property.	2
	5. Relation between geometric distribution and negative binomial distribution.	1
	6. Real life situations and applications.	1
Unit II	Multinomial Distribution	10
	1. Introduction to multinomial distribution, Probability mass function (p.m.f.), Notation,	1
	2. Joint MGF, use of MGF to obtain means, variances, covariances, total correlation coefficients, variance – covariance matrix,	5
	3. Additive property of multinomial distribution,	1
	4. Univariate marginal distribution,	2
	5. Real life situations and application.	1
Unit III	Truncated Distributions	05
	1. Concept of truncated distribution, truncation to the right, left and on both sides.	1
	2. Binomial distribution left truncated at (value zero is discarded), its p.m.f., mean and variance.	2
	3. Poisson distribution left truncated at (value zero is discarded), its p.m.f., mean and variance.	1
	4. Real life situations and applications.	1
Unit IV	Time Series Analysis	14
	1. Meaning and utility of time series, components of time series: trend, seasonal variations, cyclical variations, irregular variations.	2
	2. Exploratory data analysis: Time series plot to (i) check any trend and seasonality in the time series (ii) identify the nature of trend .	

3. Methods of trend estimation and smoothing: (i) moving average, (ii) linear, parabolic, exponential curve fitting by least squares principle.	2
4. Measurement of seasonal variations: i) simple average method, ii) ratio to moving average method (Numerical examples with heavy computations are to be asked preferably in practicals).	4
5. Fitting of autoregressive (AR) models.	4
6. Case studies of real life Time Series: Price index series, share price index series, economic time series: temperature and rainfall time series, wind speed time series, pollution levels.	1
	1

REFERENCES:

- 1) Agarwal, B. L. (2003). Programmed Statistics, Second Edition, New Age International Publishers, New Delhi.
- 2) Ghosh, J. K. and Mitra, S. K., Parthsarathi, K. R. (1993). Glimpses of India's Statistics Heritage, Wiley publishing Co.
- 3) Goon, A. M., Gupta, M. K. and Dasgupta, B. (1983). Fundamentals of Statistics, Vol. 1 and 2, Sixth Revised Edition, The World Press Pvt. Ltd., Calcutta.
- 4) Gupta, S. C. and Kapoor, V. K. (1983). Fundamentals of Mathematical Statistics, Eighth Edition, Sultan Chand and Sons Publishers, New Delhi.
- 5) Gupta, S. C. and Kapoor, V. K. (1997). Fundamentals of Applied Statistics, Third Edition, Sultan Chand and Sons Publishers, New Delhi.
- 6) Neil A. Weiss (2016). Introductory Statistics, Tenth Edition, Pearson.
- 7) Purohit, S. G., Gore S. D., Deshmukh S. R. (2008). Statistics Using R, Narosa Publishing House, New Delhi.
- 8) Sarma, K.V.S.(2001). Statistics Made it Simple: Do it yourself on PC. Prentice Hall of India, New Delhi.
- 9) Snedecor G. W. and Cochran W. G.(1989). Statistical Methods, Eighth Ed. East-West Press.

REFERENCE WEBSITES FOR PAPER I AND PAPER II:

1. www.stats.unipune.ac.in/100DatasetsforStatisticsEducation by

Dr. Anil P. Gore, Dr. Mrs. S. A. Paranjpe and Madhav B. Kulkarni available in ISPS folder)].

1. www.freestatistics.tk(NationalStatisticalAgencies)
2. www.psychstat.smsu.edu/sbk00.htm(Onlinebook)
3. www.bmj.bmjournals.com/collections/statsbk/index.shtml
4. www.statweb.calpoly.edu/bchance/stat-stuff.html
5. www.amstat.org/publications/jse/jse-data-archive.html(International journal onteachingand learning ofstatistics)
6. www.amstat.org/publications/chance(Chancemagazine)
7. www.statsci.org/datasets.html(Datasets)
8. www.math.uah.edu/stat(VirtuallaboratoriesinStatistics)
9. www.amstat.org/publications/stats(STATS:themagazineforstudentsofStatistics)
10. www.stat.ucla.edu/cases(CasestudiesinStatistics).
11. www.statsoft.com
12. www.statistics.com
13. www.indiastat.com
14. www.unstat.un.org
15. www.stat.stanford.edu
16. www.statpages.net
17. www.wto.org
18. www.censusindia.gov.in
19. www.mospi.nic.in
20. www.statisticsofindia.in
21. www.nationmaster.com (Population studies)



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(CBCS – AUTONOMY 21 PATTERN)

Course/ Paper Title	CONTINUOUS PROBABILITY DISTRIBUTIONS
Course Code	21SBST232
Semester	III
No. of Credits	2 (1.5 Units equivalent to 1 Credit)

Aims & Objectives of the Course

Sr. No.	Objectives
1.	To introduce the students with the concepts of continuous probability distributions.
2.	To acquaint students with Univariate and bivariate probability distributions, concept of some standard probability distribution such as normal distribution, exponential distribution etc
3.	To make students understand the statistical properties of continuous probability distributions.
4.	To familiarize students with the probability distribution of continuous random variable in the given real life situation.

Expected Course Specific Learning Outcome

Sr. No.	Learning Outcome
1.	Students will be acquainted with the calculations of the probabilities.
2.	Students will become aware about the role of Statistics in the situations of uncertainty and complexity.
3.	Students will be acquainted with various available probability models.

SYLLABUS

Unit No	Title with Contents	No. of Lectures
Unit I	Continuous Univariate Distributions	10
	1. Continuous sample space: Definition, illustrations.	1
	2. Continuous random variable: Definition, probability density function (p.d.f.), cumulative distribution function (c.d.f.), properties of c.d.f. (without proof).	4
	3. Expectation of continuous r.v., expectation of function of r.v., mean, variance, raw and central moments, skewness, kurtosis.	2
	4. Moment generating function (MGF): Definition, properties.	1
	5. Cumulant generating function (CGF): Definition.	1
	6. Median, Mode, partition values: quartiles, deciles, percentiles.	
Unit II	Continuous Bivariate Distributions	08
	1. Continuous bivariate random vector or variable: Joint p. d. f., joint c. d. f, properties (without proof), probabilities of events related to random variables. Marginal and conditional distributions.	2
	2. Expectation of r.v.(X,Y), expectation of function of r.v. joint moments, conditional mean, conditional variance, regression as a conditional expectation.	4
	3. Independence of random variables and also its extension to n random variables .	1
	4. Moment generating function (MGF): Properties, MGF of marginal distribution of random variables(r.v.s.), properties.	1
Unit III	Standard Univariate Continuous Distributions	18
	Uniform or Rectangular Distribution	
	1. Probability density function (p.d.f.).CDF, mean, variance, MGF.	1

	2. Application of the result to model sampling.	2
	Normal Distribution:	
	1. Probability density function (p. d. f.), p. d. f. curve, identification of scale and location parameters, nature of probability curve, mean, variance,	2
	2. MGF, central moments, skewness, kurtosis, mode, quartiles, additive property, probability distribution of standard normal variable (S.N.V.).	3
	3. Probability distribution of the mean of n . r. v s., computations of normal probabilities using normal probability integral tables.	2
	4. Central limit theorem (CLT) for r.v.s. with finite positive variance (statement only)	1
	5. Problem solving	2
	Exponential Distribution	1
	1. Probability density function (p. d. f.)	2
	2. Mean, variance, MGF, CGF, c.d.f.,	1
	3. Lack of memory property,	
	4. quartiles, distribution of sum of two i.i.d exponential random variables.	1

REFERENCES:

1. Agarwal B.L.(2003).Programmed Statistics, second edition, New Age International Publishers, New Delhi.
2. Gupta,S.C.and Kapoor,V.K.(1983).Fundamentals of Mathematical Statistics, Eighth Edition, Sultan Chand and Sons Publishers, New Delhi.
3. Hoel P. G. (1971). Introduction to Mathematical Statistics, John Wiley and Sons, New York.
4. Hogg, R.V. and Craig R.G.(1989).Introduction to Mathematical Statistics, Ed. Mac Millan Publishing Co., New York.
5. Mayer,P.(1972). Introductory Probability and Statistical Applications, Addison Wesley Publishing Co., London.
6. Mood,A.M.and Graybill, F.A. and Boes D.C. (1974).Introduction to the Theory of Statistics, Ed. 3, McGraw Hill Book Company.
7. Rao, V L S Prakash (2008).First Course in Probability and Statistics, New Age

International Publishers, New Delhi.

8. Ross S.(2002).A First Course in Probability, Sixth Edition, Pearson Education, Inc.& Dorling Kindersley Publishing, Inc.



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S.Y.B.Sc Statistics

(CBCS – AUTONOMY 21 PATTERN)

Course/ Paper Title	Statistics Practical I
Course Code	21SBST233
Semester	III
No. of Credits	2.0

Aims & Objectives of the Course

Sr. No.	Objectives
1.	To fit various discrete and continuous probability distributions and to study various real life situations.
2.	To identify the appropriate probability model that can be used.
3.	To use forecasting and data analysis techniques in case of univariate data sets
4.	To interpret computer output
5.	To summarize and analyze the data using computers

Expected Course Specific Learning Outcome

Sr. No.	Learning Outcome
1.	Students will be able to use various graphical and diagrammatic techniques and interpretation
2.	Students will be able to compute various probability measures of different probability distributions
3.	Students will be acquainted with the usage of computers for data analysis

S.No.	Title of the experiment	No. of Practicals
1	Fitting of negative binomial distribution and computation of expected frequencies.	1
2	Fitting of normal distribution and computation of expected frequencies.	1
3	Applications of negative binomial distribution	1
4	Applications of negative multinomial distribution	1
5	Model sampling from exponential distribution using distribution function	1
6	Model sampling from normal distribution using (i) distribution function, , (ii) Box-Muller transformation.	1
7	Time series : Estimation and forecasting of trend by moving averages	1
8	Estimation of seasonal indices by ratio to moving range	1
9	Finding negative binomial probabilities. Fitting of negative binomial distribution using MS Excel	1
10	Finding normal probabilities. Fitting of normal distribution using MS Excel	1
11	Fitting of linear, quadratic, exponential trends to time series data using MS Excel	2



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Course/ Paper Title	TESTS OF SIGNIFICANCE, STATISTICAL METHODS AND DEMOGRAPHY
Course Code	21SBST241
Semester	IV
No. of Credits	2 (2 Units equivalent to 1 Credit)

Aims & Objectives of the Course

Sr. No.	Objectives
1.	To acquaint students with the concept of statistical inference
2.	To present to the students the methods of analysis of data and draw conclusions.
3.	To acquaint students with computation of statistical tests and interpret them
4.	To familiarize students with fitting of multiple regression models.
5.	To introduce the students with the concept of demography and related concepts.

Expected Course Specific Learning Outcome

Sr. No.	Learning Outcome
1.	Students will be acquainted with the statistical data analysis
2.	Students will become aware about the multiple correlation and multiple linear regression analysis.
3.	Students will be acquainted with the computations of demographic indices and interpretation of the results

SYLLABUS

Unit No	Title with Contents	No. of Lectures
Unit I	Tests of Significance	14
	1. Random sample from a distribution.	1
	2. Statistic and Parameter. Sampling distribution of a statistic, standard error of a statistic with illustrations.	2
	3. Statistical Inference: Introduction to problem of Estimation and testing of hypothesis. Estimator and estimate. Unbiased estimator (definition and simple illustrations only). Point and interval estimation. Statistical hypothesis, null and alternative hypothesis, simple and composite hypothesis, one sided and two sided alternative hypothesis, critical region, and type I and type II error, level of significance. Two sided confidence interval. Tests of hypotheses using i) critical region approach, approach and iii) confidence interval approach.	7
	4. Tests for population means (large sample)	2
	5. Tests for population proportions (large sample)	2
Unit II	Multiple Linear Regression Models	08
	1. Notion of multiple linear regression. Yule's notation (trivariate case) (statement only). Fitting of regression plane of Y on X ₂ , X ₃ by the method of least squares; obtaining normal equations, solution of normal equations.	2
	2. Definition of multiple correlation coefficient Derivation of the expression for multiple correlation coefficient. Properties of multiple correlation coefficient.	1
	3. Interpretation of coefficient of multiple determination as i) proportion of variation explained by the linear regression	1

	<p>4. Partial correlation coefficient: Definition and derivation of partial correlation coefficient and Property of partial correlation coefficient ($-1 \leq r_{12} \leq 1$). (Statement only)</p> <p>5. Definition and interpretation of partial regression coefficients and r. (relations between partial regression coefficients and multiple correlations are not expected).</p> <p>6. Residual: Definition, order, derivation of variance, properties.</p>	<p>2</p> <p>1</p> <p>1</p>
Unit III	Demography	08
	<p>1. Vital events, vital statistics, methods of obtaining vital statistics, rates of vital events, sex ratios.</p> <p>2. Death/Mortality rates: Crude death rate, specific (age, sex etc.) death rate, infant mortality rate (IMR).</p> <p>3. Fertility/Birth rate: Crude birth rate, general fertility rate, specific (age, sex etc.) fertility rates, total fertility rate.</p> <p>4. Interpretations of different rates, uses and applications.</p> <p>5. Trends in vital rates as revealed in the latest census.</p>	<p>1</p> <p>2</p> <p>2</p> <p>2</p> <p>1</p>
Unit IV	Queuing Models	06
	<p>1. Introduction to queuing model. as an application of exponential distribution, Poisson distribution and geometric distribution.</p> <p>2. Inter arrival rate, service rate, traffic intensity, queue disciplines.</p> <p>3. Probability distribution of number of customers in queue, average queue length, average waiting time in: i) queue, ii) system. (without derivations).</p>	<p>2</p> <p>2</p> <p>2</p>

REFERENCES:

1. Agarwal, B. L. (2003). Programmed Statistics, Second Edition, New Age International Publishers, New Delhi.
2. Goon,A.M., Gupta,M.K. and Dasgupta, B.(1983).Fundamentals of Statistics, Vol.1, Sixth Revised Edition, The World Press Pvt. Ltd., Calcutta.
3. Gupta,S.C.and Kapoor,V.K.(1983). Fundamentals of Mathematical Statistics, Eighth Edition, Sultan Chand and Sons Publishers, New Delhi.
4. Gupta, S.C.and Kapoor,V.K.(1997). Fundamentals of Applied Statistics, Third Edition, Sultan Chand and Sons Publishers, New Delhi.
5. Montgomery D.C, Peck E.A., Vining G.G.(2006).Introduction to Linear Regression Analysis, John Wiley and Sons
6. Purohit S.G., Gore S.D., Deshmukh S.R. (2008).Statistics Using R, Narosa Publishing House, New Delhi.
7. Sarma, K.V.S. (2001).Statistics Made it Simple: Do it yourself on PC. Prentice Hall of India, New Delhi.
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S.Y.B.Sc Statistics

(CBCS – AUTONOMY 21 PATTERN)

Course/ Paper Title	SAMPLING DISTRIBUTIONS AND EXACT TESTS
Course Code	21SBST242
Semester	IV
No. of Credits	2 (2 Units equivalent to 1 Credit)

Aims & Objectives of the Course

Sr. No.	Objectives
1.	To introduce the students with the concept of sampling distributions.
2.	To acquaint students with the application of sampling distributions and exact sampling tests to different real life situations.
3.	To acquaint students with the inter-relationship between different exact sampling probability distributions.
4.	To familiarize students with the concept of tests of hypothesis (small sample tests).

Expected Course Specific Learning Outcome

Sr. No.	Learning Outcome
1.	Students will be acquainted with the understanding of the sampling probability distributions.

2.	Students will become aware about the computation of probabilities.
3.	Students will be acquainted with the testing of hypothesis related to small sample sizes (<30).

SYLLABUS

Unit No	Title with Contents	No. of Lectures
Unit I	Gamma Distribution	05
	1. Introduction and Notation,	1
	2. MGF, moments, skewness, kurtosis, mode,	2
	3. Additive property.	1
	4. Distribution of sum of i.i.d. exponential variables. Numerical problems.	1
Unit II	Chi-square Distribution	10
	1. Definition of chisquare r.v. as a sum of squares of i.i.d. standard normal variables.	1
	2. P.d.f of Chi-square variable with n degrees of freedom (d.f.).	2
	3. Mean, variance, MGF, central moments skewness, kurtosis, mode, additive property.	3
	4. Use of chi-square tables for calculations of probabilities.	2
	Normal approximation: (statement only).	2
	5. Numerical problems.	
Unit III	Student's t distribution and Snedecore's F distribution	06
	1. Introduction and notation of t distribution	1
	2. Probability density function of t distribution	1
	3. Mean and variance of t distribution	1
	4. Introduction and notation of F distribution	1
	5. Probability density function of F distribution	1
	6. Mean and variance of F distribution	1
Unit IV	Test of Hypothesis	15
	1. Tests based on chi-square distribution	7
	Test for independence of two attributes arranged in contingency table (with Yate's correction)	
	Test for goodness of fit. (to be covered in practical only)	

	<p>Test for variance (Ho: against one-sided and two-sided alternatives i) for known mean, ii) for unknown mean.</p> <p>2. Tests based on t distributions</p> <p>(i) Single sample with unknown variance and two sample for unknown equal variances tests for one-sided and two-sided alternatives.</p> <p>(ii) two sided confidence interval for population mean and difference of means of two independent normal populations.</p> <p>b) Paired t-test for one-sided and two-sided alternatives.</p> <p>3. Test based on F distribution</p> <p>Test for equality of variances: against one-sided and two-sided alternatives when i) means are known and ii) means are unknown.</p>	<p>4</p> <p>4</p>
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References:

1. Agarwal B. L. (2003). Programmed Statistics, second edition, New Age International Publishers, New Delhi.
2. Gupta, S.C. and Kapoor, V. K. (1983). Fundamentals of Mathematical Statistics, Eighth Edition, Sultan Chand and Sons Publishers, New Delhi.
3. Hoel P. G. (1971). Introduction to Mathematical Statistics, John Wiley and Sons, NewYork.
4. Hogg,R.V. and Craig R.G.(1989).Introduction to Mathematical Statistics, Ed. Mac Millan Publishing Co., NewYork.
5. Mayer, P. (1972). Introductory Probability and Statistical Applications, Addison Wesley Publishing Co., London.
6. Mood A.M. and Graybill F.A.and Boes D.C.(1974).Introduction to the Theory of Statistics, Ed. 3, McGraw Hill Book Company.
7. Ross S. (2002). A First Course in Probability, Sixth Edition, Pearson Education, Inc.and Dorling Kindersley Publishing, Inc.

Reference Websites for Paper I and Paper II:

1. www.stats.unipune.ac.in [100 Datasets for Statistics Education by Dr. Anil P. Gore, Dr. Mrs. S. A. Paranjpe and Madhav B. Kulkarni available in ISPS folder].
1. www.freestatistics.tk (National Statistical Agencies)
2. www.psychstat.smsu.edu/sbk00.htm (Online book)
3. www.bmj.bmjournals.com/collections/statsbk/index.shtml
4. www.statweb.calpoly.edu/bchance/stat-stuff.html
5. www.amstat.org/publications/jse/jse-data-archive.html (International journal on teaching and learning of statistics)
6. www.amstat.org/publications/chance (Chance magazine)
7. www.statsci.org/datasets.html (Datasets)
8. www.math.uah.edu/stat (Virtual laboratories in Statistics)
9. www.amstat.org/publications/stats (STATS: the magazine for students of Statistics)
10. www.stat.ucla.edu/cases (Case studies in Statistics).
11. www.statsoft.com
12. www.statistics.com
13. www.indiastat.com
14. www.unstat.un.org
15. www.stat.stanford.edu
16. www.statpages.net
17. www.wto.org
18. www.censusindia.gov.in
19. www.mospi.nic.in
20. www.statisticsofindia.in
21. www.nationmaster.com (Population studies)



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(CBCS – Autonomy 21 Pattern)

Course/ Paper Title	Statistics Practical II
Course Code	21SBST243
Semester	IV
No. of Credits	2.0

Aims & Objectives of the Course

Sr. No.	Objectives
1.	To conduct various tests of significance like averages, population proportions, independence of attributes, variance etc. included in theory
2.	To compute probabilities of discrete and continuous probability distributions using R software
3.	To use software for finding basic summary statistics

Expected Course Specific Learning Outcome

Sr. No.	Learning Outcome
1.	Students will be able to understand various calculations involved in the tests of hypothesis along with its interpretation
2.	Students will be able to compute probabilities using R software
3.	Students will be acquainted to find the basic summary statistics of the given numerical data

Sr.No.	Title of the experiment	No. of Practicals
1	Large sample test of population means	1
2	Large sample test of population proportions	1
3	Chi-Square test for independence of two attributes	1
4	Chi-Square test for goodness of fit	1
5	Chi-Square test for single variance	1
6	T test for population means (Single sample with unknown variance)	1
7	T test for two population means (Two samples with unknown and equal variances)	1
8	Applications of Paired t-test	1
9	F test for equality of two population variances (Means are known)	1
10	F test for equality of two population variances (Means are unknown)	1
11	Computations of Chi-Square probabilities using R software	1
12	Computations of probabilities of T and F distributions using R software	1
