



## DEPARTMENT OF STATISTICS

NIZAM COLLEGE (AUTONOMOUS)  
Osmania University, Hyderabad-5000 01.

### LESSON PLAN

<b>Name of the teacher:</b> Dr. Ch. Lakshmi Sujatha			<b>Designation :</b> Assistant Professor (c)
<b>Name of the Course:</b> B. Sc (M.S.D)	<b>Semester:</b> I	<b>Paper :</b> I	<b>Unit : I:</b> Descriptive Statistics
<b>Paper title:</b> Basic Statistics And Theory of Probability)			

Topics to be covered	No. of Hours Required
Concept of primary and secondary data. Methods of collection and editing of Primary data.	1
Designing a questionnaire and schedule. Sources and editing of Secondary Data	1
Measures of Central tendency ( Mean, Median and Mode and their simple applications) For ungrouped data	1
Measures of Central tendency ( Mean, Median and Mode and their simple applications) For grouped data	1
Geometric Mean and Harmonic Mean and their simple applications For ungrouped data	1
Geometric Mean and Harmonic Mean and their simple applications For grouped data	1
Absolute and relative measures of dispersion (range, Quartile deviation, mean deviation and standard deviation) with simple applications For ungrouped data	1
Absolute and relative measures of dispersion (range, Quartile deviation, mean deviation and standard deviation) with simple applications For grouped data	1
Importance of moments, non central moments for grouped and ungrouped data	1
Central moments for grouped and ungrouped data	1
central and non central moments and their interrelationships	1
Sheppard's corrections for moments for grouped data,	1
Measures of Skewness based on moments	1
Measures of Skewness based on Quartiles	1
kurtosis based on moments with real examples	1
<b>Total</b>	<b>15</b>

**Unit II: : Probability****No. of Hours Allotted: 15**

<b>Topics to be covered</b>	<b>No. of Hours</b>
Basic Concepts in Probability- deterministic and random experiments	2
Trail, outcome, sample space, event and operations of events,	1
mutually exclusive events exhaustive events, equally likely and favorable outcomes definitions	1
Example problems on mutually exclusive events exhaustive events, equally likely and favorable outcomes, , event and operations of events.	1
Mathematical, Statistical with merits and demerits	1
axiomatic definitions of probability with merits and demerits	1
Properties of probability based on axiomatic definition	1
Conditional Probability and independence of events	1
Theorems on Conditional Probability and independence of events	1
Example problems on Conditional Probability and independence of events	1
Addition Theorem of Probability for n events, Boole's inequality	1
Multiplication Theorem of Probability for n events, Baye's theorem with examples	1
Example problems on Addition Theorem of Probability for 2 events and 3 events	1
Example problems on Multiplication Theorem of Probability for 2 events and 3 events	1
	<b>15</b>

**Unit III: : Random Variables****No. of Hours Allotted: 15**

<b>Topics to be covered</b>	<b>No. of Hours</b>
Definition of random variable, discrete and continuous variables, functions of random variables	2
Probability mass function and Probability Density functions	1
Example problems on Probability mass function and Probability Density functions	1
Various forms of Probability mass function and Probability Density functions with examples	1
Statistical measures using Probability mass function and Probability Density functions	1
Distribution function and its properties	1
Transformation of one dimensional random variable ( Simple 1-1 functions only) Discrete random variable case	1
Transformation of one dimensional random variable ( Simple 1-1 functions only) Continuous random variable case.	1
Notion of bivariate random variable Example problems	1
Discrete and continuous bivariate distribution and statement of its properties	1
Joint probability mass function for Discrete and continuous random variables with examples	1
Marginal probability mass function for Discrete and continuous random variables with examples	1
Conditional probability mass function for Discrete and continuous random variables with examples	1
Concept of Independence of random variables illustrative examples	1
	<b>15</b>

**Unit IV: : Mathematical Expectation****No. of Hours Allotted: 15**

<b>Topics to be covered</b>	<b>No. of Hours</b>
Mathematical expectation of a function of a random variable	1
Raw moments using mathematical expectation with examples	1
central moments using mathematical expectation with examples	1
Covariance using mathematical expectation with examples	1
Addition Theorems of Expectations	1
Multiplication Theorems of Expectations	1
Example problems on Addition and multiplication Theorems of Expectations	1
Definition of Moment Generating Function( m.g.f ) and its uses and limitations	1
Cumulant Generating Function ( c.g.f ) ) and its uses and limitations	1
Properties of m.g.f and example problems on it	1
Properties of c.g.f and example problems on it	1
Probability Generating Function ( p.g.f ) and statement of their properties with applications	1
Characteristic Function (ch.f) and statement of their properties with applications	1
Example problems on p.g.f	1
Example problems on ch.f	1
<b>Total</b>	<b>15</b>

Name of the Teacher:

Head, Department of Statistics

Signature:

Signature:



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**LESSON PLAN.**

<b>Name of the teacher:</b> Dr. Ch. Lakshmi Sujatha		<b>Designation :</b> Assistant Professor (c )	
<b>Name of the Course:</b> B. Sc (M.S.D)	<b>Semester:</b> II	<b>Paper :</b> II	<b>Unit :</b> I, II III & IV
<b>Paper title:</b> Distribution Theory			

<b>Topics to be covered</b>	<b>No. of Hours Required</b>
Chebychev's and Cauchy-Schwartz's inequalities and their applications	2
Bernoulli distribution and its properties	1
Uniform distribution and its properties	1
Binomial distribution definition Example problems	1
Binomial distribution derivation of mean and variance and $r^{\text{th}}$ raw moments	1
Binomial distribution derivation of mode reproductive property for probabilities	1
Binomial distribution and derivation of its other properties	1
Poisson distribution definition Example problems	1
Poisson distribution derivation of mean and variance and $r^{\text{th}}$ raw moments	1
Poisson distribution derivation of mode reproductive property for probabilities	1
Poisson distribution and derivation of its other properties	1
Negative Binomial distribution definition Example problems	1
Negative Binomial distribution derivation of mean and variance and $r^{\text{th}}$ raw moments, m.g.f etc	1
Negative Binomial distribution derivation of reproductive property for probabilities	1
Negative Binomial distribution and derivation of its other properties	1
Geometric distribution	1
Hyper geometric distribution (Mean and Variance only)	1
	<b>15</b>

**Unit II: Discrete Distribution II****No. of Hours Allotted: 15**

<b>Topics to be covered</b>	<b>No. of Hours</b>
Properties of the Bernouli distribution such as m.g.f, c.g.f, p.g.f, c.f their real life applications	1
Properties of the uniform distribution such as m.g.f, c.g.f, p.g.f, c.f their real life applications	1
Properties of the Binomial distribution such as m.g.f, c.g.f, p.g.f, c.f their real life applications	1
Properties of the Poisson distribution such as m.g.f, c.g.f, p.g.f, c.f their real life applications	2
Properties of the Negative binomial distribution such as m.g.f, c.g.f, p.g.f, c.f their real life applications	2
Properties of the Geometric distribution such as m.g.f, c.g.f, p.g.f, c.f their real life applications	1
Memory less property of Geometric distribution with example problems	1
Reproductive property of hyper geometric distribution and also its real life applications	1
Poisson approximation to Binomial distribution	1
Binomial approximations to Hyper Geometric distribution	2
Poisson approximation to Negative Binomial distribution	2
	<b>15</b>

**Unit III: : Continuous Distributions I****No. of Hours Allotted: 15**

<b>Topics to be covered</b>	<b>No. of Hours</b>
Rectangular Distributions its mean &variance, Distribution function derivation	1
Normal Distribution its mean &variance derivation	1
Normal Distribution m.g.f moments of higher order derivation	1
Normal Distribution mode& median and mean deviation	1
Normal Distribution its area property with example problems	1
Normal Distribution Ch.F and reproductive property	1
Normal Distribution derivation of quartile deviation and other properties	1
Normal distribution as a limiting case of Binomial distributions	1
Normal distribution as a limiting case of Poisson distributions	1
Example problems on Normal distribution as a limiting case of Binomial & Poisson distributions	1
Exponential Distribution	1
Gamma Distribution	1

Beta of first kind Distributions ( mean and variance only)	1
Beta of second kind Distributions ( mean and variance only)	1
Cauchy Distribution ( definition and c.f only)	1
Total	<b>15</b>

**Unit IV: : Continuous Distributions II**

**No. of Hours Allotted: 15**

<b>Topics to be covered</b>	<b>No. of Hours</b>
Properties of Rectangular distributions such as m.g.f, c.f and hence moments up to fourth order if exist, and their real life applications	1
Properties of Rectangular distributions such as c.g.f, and hence moments up to fourth order if exist	1
Properties of Normal distributions such as m.g.f & c.f and hence moments up to fourth order if exist, and their real life applications	2
Properties of Normal distributions such as c.g.f and hence moments up to fourth order if exist, and their real life applications	2
Properties of Exponential distributions such as m.g.f & c.f and hence moments up to fourth order if exist, and their real life applications	1
Properties of Exponential distributions such as c.g.f and hence moments up to fourth order if exist, and their real life applications	1
Memory less property of Exponential distribution & it's real life applications	1
Properties of Gamma distributions such as m.g.f & c.f and hence moments up to fourth order if exist, and their real life applications	1
Properties of Gamma distributions such as c.g.f and hence moments up to fourth order if exist, and other properties	1
Reproductive property wherever exists	2
Statement and applications of Weak law of large numbers	1
central limit theorem for identically independently distributed (iid) random variables with finite variance	1
	<b>15</b>

Name of the Teacher:

Head, Department of Statistics

Signature:

Signature:



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### LESSON PLAN .

<b>Name of the teacher: Dr. Ch. Lakshmi Sujatha</b>			<b>Designation : Assistant Professor (c)</b>
<b>Name of the Course: B. Sc (M.S. D)</b>	<b>Semester: III</b>	<b>Paper : III</b>	<b>Unit : I, II III &amp; IV</b>
<b>Paper title: Statistical Methods and Theory of Estimation</b>			
<b>Topics to be covered</b>			<b>No. of Hours</b>
Population correlation coefficient and its properties			1
scattered Diagram			1
Bivariate data description and computation formula for $r(x,y)$			1
sample correlation coefficient, computation of correlation coefficient for ungrouped data			1
sample correlation coefficient, computation of correlation coefficient for grouped data			1
correlation ratio			1
spearman's rank correlation coefficient formula derivation			1
spearman's rank correlation coefficient properties and example problem			1
Principle of least squares, Straight line fitting			1
Principle of least squares, parabola fitting			1
Principle of least squares, exponential curves fitting			1
Principle of least squares, Power curve fitting			1
simple linear regression & Regression lines derivation			1
correlation versus regression, properties of regression coefficients			1
Example problems on curve fitting			1
Total			<b>15</b>



**Unit: II****No. of Hours Allotted: 15**

<b>Topics to be covered</b>	<b>No. of Hours</b>
Concept of partial correlation coefficients(only for three variables)	1
Example problems on partial correlation coefficients(only for three variables)	1
Concepts of multiple correlation coefficients(only for three variables)	1
Example problems on multiple correlation coefficients(only for three variables)	1
Analysis of categorical data class frequencies for 2 attributes	1
Analysis of categorical data class frequencies for 3 attributes	1
independence and association of two attributes	1
Concept of partial association of attributes	2
various measures of association(Yule's Q) for two attributes data	1
Coefficient of colligation Y	1
Inter relation between Q and Y and example problems on computation of Q and Y	2
Pearson's coefficient of contingency	1
Tcherprow coefficient of contingency	1
Example problems on Pearson's and Tcherprow coefficient of contingency	1
<b>Total</b>	<b>15</b>

**Unit: III****No. of Hours Allotted: 15**

<b>Topics to be covered</b>	<b>No. of Hours</b>
Concepts of population, parameter, random sample, statistic, sampling distribution	1
Standard error of sample mean(s) and sample proportion(s)	1
Independence of sample mean and variance in random sampling from normal distributions	1
Exact sampling distributions- Chi-square statistic definition its p.d.f derivation	1
Chi-square statistic m.g.f derivation and hence moments derivation	1
Additive property of Chi-square statistic and probability curve structure discussion	1
t-statistic definition its p.d.f derivation	1
t-statistic odd and even moments derivation and shape of t distribution probability curve discussion	1
F Distribution definition and its p.d.f derivation	1
Mean and variance of F Distribution	1

t and F Distributions and chi-square Distributions their inter relationships	1
Point estimation of a parameter, concept of bias and mean square error of an estimate	1
Criteria of a good estimator unbiasedness	1
consistency, with examples& efficiency with examples	1
Concept of Sufficiency	1
<b>Total</b>	<b>15</b>

**Unit: IV**

**No. of Hours Allotted: 15**

<b>Topics to be covered</b>	<b>No. of Hours</b>
Statement of Neyman's factorization theorem, derivations of sufficient statistics in case of Binomial distribution	2
Derivations of sufficient statistics in case of Poisson distribution	1
Derivations of sufficient statistics in case of Exponential distribution	1
Derivations of sufficient statistics (one parameter only) distributions	1
Estimation by method of moments	1
Illustrative examples using Estimation by method of moments of estimation	1
Maximum likelihood (ML), statements of asymptotic properties of MLE	1
Maximum likelihood (ML) method of estimation in case of normal distribution parameters	2
Maximum likelihood (ML) method of estimation in case of other distribution parameters viz Binomial and Poisson etc	1
Concept of Confidence Interval estimation,	1
Confidence intervals of the parameters of the normal population by pivot method	1
Confidence intervals of the parameters of the other populations	2
<b>Total</b>	<b>15</b>

Name of the Teacher:  
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Head, Department of  
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<b>Name of the teacher: Dr. Ch. Lakshmi Sujatha</b>			<b>Designation : Assistant Professor (c)</b>
<b>Name of the Course: B. Sc (M.S. D)</b>	<b>Semester: IV</b>	<b>Paper : IV</b>	<b>Unit : I, II III &amp; IV</b>
<b>Paper title: Statistical Inference</b>			

**Unit: I**

**No. of Hours Allotted: 15**

<b>Topics to be covered</b>	<b>No. of Hours</b>
Concepts of statistical hypotheses, null and alternative hypothesis	1
Steps involved in testing of hypothesis	1
critical region, two types of errors, level of significance and power of a test	2
Illustrative problems on critical region, two types of errors, level of significance and power of a test	2
One tailed and two tailed tests	1
Test function (non randomized and randomized)	1
Neyman-Pearson's fundamental lemma for randomized tests statement and proof	2
NP lemma application in Binomial and case and power determination	1
NP lemma application in Poisson distribution case and power determination	1
NP lemma application in Normal distribution case and power determination	1
NP lemma application in Exponential distribution case and power determination	1
NP lemma application in other distributions cases and power determination	1
<b>Total</b>	<b>15</b>

**Unit: II**

**No. of Hours Allotted: 15**

<b>Topics to be covered</b>	<b>No. of Hours</b>
Large sample tests: use of central limit theorem in testing	1
Large sample tests for single mean	1
Large sample tests for difference between means	1
Large sample tests for single mean & difference between means working out problems	1
Large sample tests for Single proportion	1
Large sample tests for difference between proportions	1
Large sample tests for single proportion & difference between proportions working out problems	1
Large sample tests for single standard deviation (S.D)	1
Large sample tests for difference between standard deviations	1
Large sample tests for single S.D & difference between S.Ds working out problems	1
Large sample tests for single correlation coefficient( $\rho(x,y)$ )	1
Large sample tests for difference between correlation coefficient	1
Large sample tests for single $\rho(x,y)$ & difference between $\rho(x,y)$ s working out problems	1
Confidence intervals for single mean & difference between means	1
Confidence intervals for single Proportion & difference between proportion(s), single S.D & difference between S.D(s)	1
<b>Total</b>	<b>15</b>

**Unit:III**

**No. of Hours Allotted: 15**

<b>Topics to be covered</b>	<b>No. of Hours</b>
Tests of significance based on chi square	2
Tests of significance based on t statistic single mean	1
Tests of significance based on t statistic difference between means	1
Tests of significance based on F statistic	1
Tests of significance based on F statistic working out example problem	1
T test for single mean and difference between means working out example problem	1
Chi square test for goodness of fit	1
Chi square test for goodness of fit working out example problem	1
Chi square test for independence of attributes	1
Chi square test for independence of attributes working out example problem	1

Definition of order statistics $X(\min)$ , $X(\max)$ $X[i]$ for all $i=1,2,3,\dots,n$	2
Statement of order statistics distribution with simple examples	2
<b>Total</b>	<b>15</b>

**Unit:IV**

**No. of Hours Allotted: 15**

<b>Topics to be covered</b>	<b>No. of Hours</b>
Nonparametric tests-their advantages and disadvantages, comparison with parametric tests	2
Measurement Scale-nominal, ordinal, interval and ratio	1
One sample runs tests, sign test	1
Two sample runs tests, sign test	1
Wilcoxon-signed rank tests for single sample	1
Wilcoxon-signed rank tests for paired samples	1
Wilcoxon-signed rank tests for single & paired samples working out example problems	1
Wilcoxon-signed rank test for two independent samples	1
Wilcoxon-signed rank test for two independent samples working out example problems	1
Median test & working out example problems	1
Wilcoxon-Mann-Whitney U test	1
Wilcoxon-Mann-Whitney U test working out example problems	1
Wald Wolfowitz run test	1
Wald Wolfowitz run test working out example problems	1
<b>Total</b>	<b>15</b>

Name of the Teacher:  
Signature:

Head, Department of  
Signature:

Course/Paper: P-I

No. of Hours Allotted: 30

Topics to be covered	No. of Hours
Basics of Excel- Data entry, editing and saving, establishing and copying formulae, built in functions in Excel, copy and paste and exporting of MS word document.	3
Graphical representation of data( Histogram, Frequency polygon, Ogive curves)	3
<b>Graphical representation of data( Histogram, Frequency polygon, Ogive curves) using MS-Excel</b>	3
Diagrammatic representation of data( Bar and Pie)	3
<b>Diagrammatic representation of data( Bar and Pie) using MS Excel</b>	3
Computation of Central and Non central moments- Sheppard's correction for grouped data	3
Computation of Karl Pearson's and Bowley's Coefficient of Skewness and Kurtosis- $\beta_1$ and $\beta_2$	6
Computation of Measures of central tendency and dispersion, Coefficients of Skewness and Kurtosis using MS Excel	6
	<b>30</b>

Name of the Teacher:  
Signature:Head, Department of  
Signature:

Course/Paper: P-II

No. of Hours Allotted: 36

Topics to be covered	No. of Hours
Fitting of Binomial distribution- Direct method and Recurrence method	3
<b>Fitting of Binomial distribution(Direct method) using MS Excel</b>	3
Fitting of Poisson distribution- Direct method and Recurrence method	3
<b>Fitting of Poisson distribution(Direct method) using MS Excel</b>	3
Fitting of Negative Binomial distribution	3
Fitting of Geometric distribution	3
Fitting of Hyper Geometric distribution	3

Fitting of Normal distribution using Areas method and ordinates method	3
Fitting of Exponential distribution	3
<b>Fitting of Exponential distribution using MS-Excel</b>	3
Fitting of Cauchy distribution	3
<b>Fitting of Cauchy distribution using MS-Excel</b>	3
	<b>36</b>

Name of the Teacher:  
Signature:

Head, Department of  
Signature:

**Class :** B.Sc (M.S.SC)

**(Practicals)**

**Section:** Statistics

**Course/Paper:** P-III

**No. of Hours Allotted:** 33

<b>Topics to be covered</b>	<b>No. of Hours</b>
Generation of random sample from uniform(0,1), uniform (a,b), exponential, Normal and Poisson distributions	3
<b>Simulation of random samples from Uniform(0,1), Uniform(a,b), Exponential Normal and Poisson distributions using MS- Excel.</b>	3
Fitting of a straight line and parabola, power curves of the type $y=ax^b$ and exponential curves $y=ab^x$ and $y=ae^{bx}$ by method of least squares.	6
<b>Fitting of a straight line and parabola, power curves of the type <math>y=ax^b</math> and exponential curves <math>y=ab^x</math> and <math>y=ae^{bx}</math> by method of least squares using MS-Excel.</b>	3
Computation of Yule's coefficient of association, Pearson's Tcherprows coefficient of contingency	3
Computation of correlation coefficient, forming regression lines for grouped and ungrouped data	3
<b>Computation of correlation coefficient, forming regression lines using MS-Excel</b>	3
Computation of Multiple and partial correlation coefficient	3
<b>Computation of Multiple and partial correlation coefficient using MS-Excel</b>	3
Computation of correlation ratio.	3

	<b>33</b>
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Name of the Teacher:  
Signature:

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**Class : B.Sc (M.S.SC) & (M.S.D) (Practicals)**

**Section: Statistics**

**Course/Paper: P-IV**

**No. of Hours Allotted: 30**

<b>Topics to be covered</b>	<b>No. of Hours</b>
Large sample test for mean(s), proportion(s), standard deviation(s) and correlation coefficient.	3
Small sample test for single mean and difference of means and correlation coefficient. Paired t-test	3
<b>Small sample test for single mean and difference of means and correlation coefficient using MS-Excel.</b>	3
Small sample test for single variance and difference of variances	3
<b>Small sample test for single variance and difference of variances using MS-Excel</b>	3
Chi-square test for goodness of fit and independence of attributes	3
<b>Chi-square test for goodness of fit and independence of attributes using MS-Excel</b>	3
Non parametric tests for single and related samples (Sign test and Wilcoxon-signed rank test) and one sample run test.	3
Non parametric tests for two independent samples (Median test, Wilcoxon-Mann-Whitney U test, Wald Wolfowitz run test)	6
	<b>30</b>

Name of the Teacher:

Head, Department of Statistics





**DEPARTMENT OF**  
**NIZAM COLLEGE (AUTONOMOUS)**  
Osmania University, Hyderabad-5000 01.



**LESSON PLAN .**

Name of the teacher : P PRASHANTHI			Designation: PTL
Name of the course: B.Sc (M.S.Cs)	Semester: I	Paper :I	Unit:
Paper title : Descriptive statistics and probability			

UNIT:I

S.NO	Name of the topic	No.of.ho urs
1	Concept of primary and secondary data	1
2	Examples and classification of data, tabulation, bivariate frequency distribution	1
3	Measure of central tendency (A.M, median)	1
4	Measure of central tendency(MODE,G.M,H.M)	1
5	Measure of dispersion ( range, quartile deviation) and examples	1
6	Measure of dispersion (Mean deviation, S.D and variance)	1
7	Applications( central tendency and dispersion)	1
8	Important of moments , central and non-central moments	2
9	Inter relationships (central and Non central moments) and example problems	2
10	Sheppard's correction, measure of Skewness based on quartile and moments	1
11	Kurtosis based on moments with real life examples	1
	Total No.of hours	13

UNIT : II

S.no	Name of the topic	No. of hours
1	Basic concepts of probability, deterministic and random experiment (trial ,out come ,sample, sample space..)	1
2	Probability basic definitions(event, operation of events mutually exclusive and exhaustive even .equally likely, favourable events) and examples	2

3	Mathematical statistical and axiomatic definition of probability their merits and demerits, Properties of probability based on axiomatic	1
4	Theorems on probability ,addition theorem	1
5	Extension of general law of addition theorem and examples	1
6	Conditional probability , Multiplication theorems and Extension of general law of multiplication theorem and examples	2
7	Boole's inequality theorems	1
8	Independent events, pair wise ,mutually independent events and theorems	1
9	Simple Probability Theorems	1
10	Bayes theorem and its examples	1
	Total no. of hours	12

UNIT :III

S.no	Name of the topic	No.of.hours
1	Random variables and examples of r .v , discrete r. v, continuous r. v (p .m .f ,p .d .f)	1
2	Distribution function of a r. v, properties of distribution function	1
3	Various formulae on discrete and continuous r. v and example problems	2
4	Transformation of one-dimensional r. v and example problems	1
5	Bivariate random variables and discrete random variable (marginal probability function of x ,y and conditional probability functions of $y x$ , $x y$ )	1
6	Bivariate discrete random variable example problems	1
7	Bivariate random variables and continuous random variable (marginal probability function of x ,y and conditional probability functions of $y x$ , $x y$ )	1
8	Bivariate continuous random variable example problems	1
9	Distribution function of bivariate r. v (marginal probability function of x ,y and conditional probability functions of $y x$ , $x y$ ) and stochastic independence of r. v	1
	Total no. of. hours	10

## UNIT: IV

S.NO	Name of the topic	No.of.hours
1	Mathematical expectation and expectation of function of a R. v,raw, central moments , covariance using expectations	1
2	Additional theorem of expectation and generalization of additional theorem of expectations	1
3	Multiplication theorem of expectation and generalization of multiplication theorem of expectations	1
4	Results of expectations and results on variance, results on covariance	2
5	Generating functions : moment generating function, properties and limitations	1
6	Cumulate generating function, properties and limitations	1
7	Characteristic function and probability generating function, properties and limitations	1
8	Cauchy-schwartz inequality and chebychev's inequality	1
9	Application of chebychev's inequality and Cauchy-schwartz inequality	1
10	Total no .of. hours	10

p prashanthi

Signature of the Teacher

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# DEPARTMENT OF STATISTICS

NIZAM COLLEGE (AUTONOMOUS)

Osmania University, Hyderabad-5000 01.

## LESSON PLAN .

Name of the teacher: D. MOUNIKA			Designation : Part Time Lecturer
Name of the Course: BSc(MSCs)	Semester: 5	Paper : 5(A)	Unit : 3
Paper title: Applied statistics-1			

s. no	Name of the topic	No of hours required	Remarks
1	Analysis of time series, components of time series	1	
2	Mathematical models of time series	1	
3	Determination of trend by principle of least squares method	3	
4	Determination of trend by moving average method	1	
5	Fitting of growth curves(i) Modified exponential curve	1	
6	(ii) Gompertz curve	1	
7	(iii) Logistic curve	1	
8	Determination of seasonal indices by Ratio to moving average method	1	
9	Determination of seasonal indices by Ratio to trend method	1	
10	Determination of seasonal indices by link relative method	1	
11			
12			
13			
14			
15			

Signature of the Teacher

Signature of the Head



**LESSON PLAN.**

<b>Name of the teacher: D.MOUNIKA</b>			<b>Designation : part time lecturer</b>
<b>Name of the Course: B.Sc(MSCs)</b>	<b>Semester: 5</b>	<b>Paper : 5(A)</b>	<b>Unit : 1</b>
<b>Paper title: Applied Statistics-1</b>			

<b>s. no</b>	<b>Name of the topic</b>	<b>No of hours required</b>	<b>Remarks</b>
1	<b>Sample Survey</b> : Introduction , concept of population, sample, sampling unit, parameter, statistic, sample frame , sampling distribution and standard error.	2	
2	Principal steps involved in a sample survey.	1	
3	Sampling and non sampling errors. Limitations of sampling	1	
4	<b>Sampling methods</b> : Types of sampling: subjective, probability and mixed sampling methods.	1	
5	Simple random sampling: Introduction, Definition, simple random sampling with and without replacement(srswr, srswor)	1	
6	Selection of a simple random sample . Notations and terminology	1	
7	Theorems in srswor: sample mean is an unbiased estimator of population mean, sample mean square in an unbiased estimator of population mean square.	2	
8	Variance of the sample mean in srswor, standard error of the sample mean in srswor . Estimation of S.E of sample mean in srswor, sampling fraction, Finite population correction(f.p.c)	1	
9	Theorems in srswr: sample mean is an unbiased estimator of population mean, sample mean square in an unbiased estimator of the population variance.	1	
10	variance of sample in srswr . comparison of variances in	1	

	srswor and srswr. Srswor vs. srswr.		
11	Estimates of population mean , total, and proportion , their variances in simple random sampling with and without replacement	2	
12	Merits and limitations of simple random sampling	1	
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**DEPARTMENT OF STATISTICS**  
**NIZAM COLLEGE (AUTONOMOUS)**  
**Osmania University, Hyderabad-5000 01.**



**LESSON PLAN.**

<b>Name of the teacher: D. MOUNIKA</b>			<b>Designation : Part Time Lecturer</b>
<b>Name of the Course: BSc(MSCs)</b>	<b>Semester: 5</b>	<b>Paper : 5(A)</b>	<b>Unit : 2</b>
<b>Paper title: Applied Statistics-1</b>			

s. no	Name of the topic	No of hours required	Remarks
1	Stratified random sampling: Introduction, Definition, Notations and terminology in stratified random sampling.	1	
2	Estimates of population mean, total, and proportion their variances in stratified random sampling.	1	
3	Variance of the sample mean in stratified random sampling. Allocation of sample size: (i) proportion allocation, variance of sample mean in proportion allocation.	1	
4	Neyman's allocation, cost function, Variance of the sample mean in Optimum allocation	2	
5	Optimum allocation – A discussion of the sample size n	1	

6	Efficiency of stratified random sampling. Advantages and disadvantages of stratified random sampling.	1	
7	Systematic sampling: introduction, definition, notations and terminology .	1	
8	variance of the systematic sample mean in systematic sampling.	1	
9	Systematic sampling vs. simple random sampling	1	
10	Systematic sampling vs. stratified random sampling	1	
11	Efficiency of systematic sampling over simple random sampling	1	
12	Discussion of efficiency between systematic sampling and stratified random sampling	1	
13	Merits and demerits of systematic sampling.	1	
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