



Bharatiya Vidya  
**Bhavan**

Academic Organiser 2017-18

Department of Mathematics & Statistics

B.Sc. I year Semester I

Subject: Descriptive Statistics & Probability Paper code: ST122

Month	Sub Units	Topics to be covered	No.of classes per topic	
<b>UNIT I</b>				
J U N E	1	Types of collection of data	2	
	2	Concept of Population and sample, quantitative and qualitative data	2	
<b>UNIT I</b>				
J U L Y	1	Questionnaire and Schedule	1	
	2	Tabulation and Classification	1	
	3	Univariate and bivariate Frequency distribution	2	
	4	Measurement of scales	1	
	5	Diagrammatic and Graphical presentation	2	
	<b>UNIT II</b>			
	6	Introduction of Statistics	1	
7	Measures of Central Tendency	7		
<b>UNIT II</b>				
A U G U S T	1	Measures of dispersion	5	
	2	Moments and their inter relation	3	
	3	Skewness, Kurtosis & Sheppard's correction	2	
	<b>UNIT III</b>			
	4	Introduction to Probability and basic concepts of probability	2	
	5	Simple theorems on Probability	2	
	6	Addition theorem for 2 and n events	1	
	7	Conditional Probability	2	
	8	Multiplication theorem for 2 and n events	1	
	9	Simple problems	3	
	10	Baye's theorem	2	
11	Boole's inequality	1		
<b>UNIT IV</b>				
S E P T E M B E R	1	Definition of r.v. and types of r.v.	1	
	2	Properties of distribution function	1	
	3	Functions of r.v.	1	
	4	transformation of r.v.s	3	
	5	Mathematical Expectations introduction	1	
	6	Properties of mathematical expectations	2	
	7	Properties of variances	2	
	8	M.G.F. and its properties	1	
	9	P.G.F. and its properties	1	
	10	C.F. and its properties	1	
	11	C.G.F. and its properties	1	
	12	Tscheby chev's inequality	3	
	13	Cauchy Schwartz inequality	1	
<b>TOTAL</b>			<b>62</b>	



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B.Sc. I year Semester II

Subject: Probability distributions

Paper code: ST222

Month	Sub Units	Topics to be covered	No. of classes per topic
NOVEMBER		<b>UNIT I</b>	
	1	Introduction to bivariate r.v. and notations	2
	2	Joint marginal and conditional distributions	2
	3	independence of random variables	1
	4	Statement and applications of W.L.L.N.	2
	5	C.L.T. for i.i.d. r.v.s with finite variance	3
			<b>UNIT II</b>
6	Discrete Uniform distribution	1	
7	Bernouli distribution	1	
DECEMBER		<b>UNIT II</b>	
	1	Binomial distribution	4
	2	Poisson distribution	5
	3	Negative Binomial distribution	3
	4	Geometric distribution	3
5	Hyper geometric distribution	2	
JANUARY		<b>UNIT III</b>	
	1	Rectangular distribution	3
	2	Normal distribution	9
		<b>UNIT IV</b>	
3	Exponential distribution	3	
4	Gamma distribution of first kind	2	
FEB And MARCH		<b>UNIT IV</b>	
	1	Gamma distribution of first kind	1
	2	Gamma distribution of second kind	3
	3	Beta distribution of first kind	2
	4	Beta distribution of second kind	2
	5	Cauchy distribution	4
6	Revision	2	
<b>TOTAL</b>			<b>60</b>



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B.Sc. II year Semester III

Subject: Statistical Methods and Inference - I

Paper code: ST322

Month	Sub Units	Topics to be covered	No.of classes per topic
JUNE		<b>Unit I</b>	
	1	Fitting of Curves	5
	2	Theory of Attributes	8
JULY		<b>Unit II</b>	
	1	Correlation Coefficient	5
	2	Coefficient of determination	1
	3	Rank Correlation Coefficient	3
	4	Regression Analysis	7
AUGUST		<b>Unit III</b>	
	1	Basic concepts of sampling distribution	2
	2	Exact sampling distributions - t, F, $\chi^2$	4
	3	Relation b/w t & F and F & $\chi^2$ distribution	2
	4	Theory of Estimation basic definitions	2
	5	Unbiasedness and Consistency	6
SEPTEMBER		<b>Unit IV</b>	
	1	Efficiency, Sufficiency and Neyman's Factorization Theorem	5
	2	Methods of Estimation: MLE and MM	7
	3	Point Estimation, Interval Estimation and Confidence Limits	3
		<b>TOTAL</b>	<b>60</b>



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B.Sc. II year Semester IV

Subject: Statistical Inference - II

Paper code: ST422

Month	Sub Units	Topics to be covered	No. of classes per topic
November	1	UNIT - I	5
		Testing of hypothesis ( Concept )	10
December	1	UNIT - II	15
		Large Sample Tests	
January	1	UNIT - III	13
		Small Sample Tests	2
February	1	UNIT - IV	15
		Non parametric Tests	
		<b>TOTAL</b>	<b>60</b>

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B.Sc. III year Semester - V

Subject: Applied statistics - I Paper code : ST522

Month	Sub Units	Topics to be covered	No. of classes per topic
June		<u>Unit III</u>	
		1 Time Series- Introduction	2
		2 Measurements of Trend	4
		3 Meaurement of Seasonal Indices	3
July		<u>Unit III</u>	
		4 Measurement of Seasonal Indices	2
		<u>Unit IV</u>	
		1 Index Numbers - Introduction	1
		2 Construction of Weighted, Un weighted Index Numbers	4
		3 Base Shifting, Splicing, Deflation and CLIN	3
		4 Indian Official Statistics	2
August		<u>Unit I</u>	
		1 Principles of sample survey	1
		2 Errors in sample survey	2
		3 Simple Random Sampling	9
September		<u>Unit II</u>	
		1 Stratified Random Sampling	6
		2 Systematic Random Sampling	6
		<b>Total</b>	45



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B.Sc. III year Semester - VI

Subject: Applied statistics -II Paper code : ST622

Month	Sub Units	Topics to be covered	No. of classes per topic
November		<u>Unit I</u>	
	1	ANOVA- Introduction	2
	2	One way classification	5
	3	Two way classification	5
December		<u>Unit II</u>	
	1	Design of Experiment- Introduction	2
	2	Completely Randomized Design	3
	3	Randomised Block Design	3
	4	Latin square Design	4
January		<u>Unit III</u>	
	1	Vital statistics- Introduction	2
	2	Fertility Rate, Mortality Rate and Population Growth	7
	3	Life Table	4
February		<u>Unit IV</u>	
	1	Demand Analysis- Introduction	1
	2	Price elasticity of Supply, Demand	3
	3	Leontif's Method and Pigous Method	4
	4	Pareto's Law of Income distribution	2
		<u>Total</u>	45



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B.Sc. III year Semester - V

Subject: Statistical Quality Control & Reliability Paper code : ST522A

Month	Sub Units	Topics to be covered	No. of classes per topic
June		<u>Unit I</u>	
	1	SQC - Introduction	2
	2	Process Control	1
	3	x-bar and R chart	2
	4	x-bar and S-chart	2
July		<u>Unit I</u>	
	5	No. of defective chart	2
	6	No. of defects chart	2
	7	Proportion defective chart	2
		<u>Unit II</u>	
	1	Acceptance Sampling Plan	3
August		<u>Unit II</u>	
	2	Single Sampling Plan	6
	3	Double Sampling Plan	6
September		<u>Unit IV</u>	
	1	Reliability Theory	9
		<u>Unit III</u>	
	1	Six-Sigma	8
		<b>Total</b>	<b>45</b>

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B.Sc. III year Semester - VI

Subject: Operations Research Paper code : ST622A

Month	Sub Units	Topics to be covered	No. of classes per topic
November	1	<u>Unit I</u> Formulation of Linear Programming Problem	2
	2	Graphical Solutions	3
	3	Simplex Method	3
December	4	<u>Unit I</u> Big -M Method	3
	5	Two Phase Method	2
	1	<u>Unit II</u> Duality	6
January	2	<u>Unit II</u> Dual Simplex Method	6
	1	<u>Unit III</u> Transportation Problem	6
February	2	<u>Unit III</u> Transshipment Problem	4
	1	<u>Unit IV</u> Assignment Problem	6
	2	Sequencing Problem	4
		<b>Total</b>	<b>45</b>