Annual Teaching Plan

Academic Year: 2020-2021   Semester I and V   Department -Statistics
Subject - Statistics   Title -DESCRIPTIVE STATISTICS –I & ELEMENTARY PROBABITITY THEORY

Section I- Descriptive Statistics I
Practicals B. Sc. I & III

Name of teacher - Pawar A. A.

Month: October-November			Module/Unit	Sub-units planned
Lectures 13	Practicals 28	Total 41	Unit-1 Introduction to Statistics & Measures of Central Tendency	1. Meaning of primary and secondary data, 2. Basis concept of population and sampling methods. 3. Concept of central tendency.
Month: December				
Lectures 14	Practicals 36	Total 50	Unit -1 Measures of Central Tendency	1. A.M., G.M., H.M., and its properties 2. Partition values: Quartile, deciles and percentiles. 3. Comparison between averages
			Unit-2 Measures of Dispersion	1. Concept of dispersion, 2. Absolute and relative measure of dispersion.
Month: January				
Lectures 12	Practicals 28	Total 40	Unit-2 Measures of Dispersion	1. Definition of variance and standard deviation with its properties 2. Coefficient of variation
			Unit-3 Moments, Skewness & Kurtosis	1. Moments: Raw and central moments. 2. Relation between raw and central moments. 3. Skewness and kurtosis (concept and types).
Month: February				
Lectures 12	Practicals 32	Total 44	Unit-4 Theory of Attributes	1. Concept of attributes and some definitions 2. Concept of Consistency 3. Concept of Independence and Association of two attributes. 4. Definition and interpretation of Yule's coefficient of association (Q) and Coefficient of colligation (Y). 5. Relation between Q and Y. Examples

Name and Signature of teacher

(Mc. Pawar V. V.)

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Annual Teaching Plan

Academic Year: 2020-2021   Semester I   Department -Statistics
Subject - Statistics   Title -DESCRIPTIVE STATISTICS –I & ELEMENTARY PROBABITITY
THEORY

Section II- Elementary Probability Theory

Name of teacher - Pawar V. V.

Month: October-November			Module/Unit	Sub-units planned
Lectures 9	Practicals 16	Total 25	Unit-1 Sample space and Events	1. Deterministic and non-deterministic experiments 2. Definitions: Sample space, Event, Types of events 3. Algebra of events
Month: December				
Lectures 9	Practicals 20	Total 29	Unit -1 Sample space and Events	1. Definition of Power set. 2. Symbolic representation of given events and Illustrative examples.
			Unit-2 Probability	1. Apriori definition of probability, Probability model 2. Axiomatic definition of probability 3. Illustrative examples
Month: January				
Lectures 8	Practicals 12	Total 20	Unit-2 Probability	1. Some theorems on probability 2. Definition of probability in terms of odd ratio.
			Unit-3 Conditional Probability& Independence of events	1. Definition of conditional probability ,Multiplication theorem of probability 2. Baye's theorem, examples on conditional probability and Baye's theorem. 3. Independence of two events, Pairwise and Mutual Independence for three events. Elementary examples.
Month: February				
Lectures 8	Practicals 12	Total 20	Unit-4 Univariate Probability Distributions (finite sample space):	1. Discrete random variable, p.m.f. and c.d.f. 2. Properties of c.d.f. 3. Probability distribution of function of random variable. 4. Median and Mode

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Annual Teaching Plan

Academic Year: 2020-2021   Semester III   Department -Statistics

Subject - Statistics   Title –Probability Distributions I and Statistical Methods I

Section I- Probability Distributions I

Name of teacher – Lohar M. B.

Month: October-November			Module/Unit	Sub-units planned
Lectures 13	Practicals 32	Total 45	Unit-1 Continuous Univariate Distributions	1. Definition of the continuous sample space, 2. Continuous random variable (r.v.), p.d.f, c.d.f. and its properties 3. Expectation of r.v., expectation of function of r.v., mean, median, mode, quartiles, variance, harmonic mean, raw and central moments, skewness and kurtosis.
Month: December				
Lectures 14	Practicals 32	Total 46	Unit -1 Continuous Univariate Distributions	1. Transformations of univariate continuous random variable and continuous bivariate random variables 2. Methods of transformation
			Unit-2 Continuous Bivariate Distributions	1. Definition of bivariate continuous random variable , p.d.f, c.d.f., 2. Conditional distribution and independence of random variables. 3. Expectation of function of r.v.s, covariance, correlation coefficient, conditional expectation.
Month: January				
Lectures 11	Practicals 36	Total 47	Unit-2 Continuous Bivariate Distributions	1. Transformation of continuous bivariate random variables 2. Distribution of bivariate random variables using Jacobin of transformation. 3. Examples and problems.
			Unit-3 Uniform and Exponential Distribution	1. Uniform distribution 2. Exponential distribution
Month: February				
Lectures 12	Practicals 28	Total 40	Unit-4 Normal Distribution	1. Normal distribution with parameters μ & σ^2, Standard normal distribution 2. Properties of Normal distribution 3. Numerical examples

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Name and Signature of teacher

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Annual Teaching Plan

Academic Year: 2020-2021   Semester III   Department -Statistics
Subject - Statistics   Title –Probability Distributions I and Statistical Methods I

Section II - Statistical Methods I

Name of teacher – Bhosale A. B.

Month: October-November			Module/Unit	Sub-units planned
Lectures 13	Practicals 16	Total 29	Unit-1 Index Number	1. Meaning and utility of index numbers. 2. Types of index numbers.
Month: December				
Lectures 12	Practicals 20	Total 32	Unit-1 Index Number	1. Laspeyre's, Paasche's and Fisher's index numbers 2. Tests of index numbers. 3. Cost of living index number
			Unit-2 Demography	1. Introduction and need of vital statistics 2. Mortality rates, Fertility Rates and Reproduction Rates
Month: January				
Lectures 14	Practicals 16	Total 30	Unit-3 Statistical Quality Control	1. Meaning and purpose of S.Q.C. 2. Process control, Product control 3. Shewhart's control chart for Attributes
Month: February				
Lectures 11	Practicals 16	Total 27	Unit-4 Chebychev's Inequality	1. Chebycheve's inequality for discrete, continuous distributions.

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Academic Year: 2020-2021   Semester   III Department -Statistics

Subject - Statistics   Title -Practical II

Practicals B. Sc. II

Name of teacher – Dr. Kumbhar R. R.

Month: October-November			Module/Unit	Sub-units planned
Lectures	Practicals 28	Total 28	Practical – II	1. Fitting of Discrete Uniform distribution 2. Fitting of Binomial distribution.
Month: December				
Lectures	Practicals 36	Total 36	Practical – II	1. Fitting of Hypergeometric distribution. 2. Fitting of Poisson distribution.
Month: January				
Lectures	Practicals 36	Total 36	Practical – II	1. Fitting of Geometric distribution. 2. Fitting of Negative Binomial distribution.
Month: February				
Lectures	Practicals 32	Total 32	Practical – II	1. Model sampling from Discrete Uniform distribution. 2. Model sampling from Binomial distribution. 3. Model sampling from Hypergeometric distribution

Name and Signature of teacher

Dr. R. R. Kumbhar

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Annual Teaching Plan

Academic Year: 2020-2021   Semester I, III and V   Department -Statistics

Subject - Statistics   Title –Probability Distributions

Paper No. IX Probability Distributions I

Practicals B. Sc. I, II & III

Name of teacher – Patil P. C.

Month: October-November			Module/Unit	Sub-units planned
Lectures 13	Practicals 40	Total 53	Unit-1 Univariate Continuous Probability Distributions	1. Laplace (Double Exponential) Distribution 2. Lognormal Distribution 3. Cauchy Distribution
Month: December				
Lectures 14	Practicals 50	Total 64	Unit -1 Univariate Continuous Probability Distributions	1. Weibull Distribution 2. Relation of Weibull distribution with gamma and exponential distribution, 3. Examples and problems.
			Unit-2 Univariate and Multivariate Probability Distributions	1. Logistic distribution 2. Pareto distribution 3. Power series distribution its particular cases
Month: January				
Lectures 11	Practicals 20	Total 31	Unit-2 Univariate and Multivariate Probability Distributions	1. Multinomial distribution 2. Trinomial distribution as particular case of multinomial distribution.
			Unit-3 Truncated Distributions	1. Truncated distribution as conditional distribution, truncation to the right, left and on both sides. 2. Truncated binomial distribution 3. Truncated Poisson distribution $P(m)$ 4. Truncated normal distribution $N(\mu, \sigma^2)$
Month: February				
Lectures 12	Practicals 20	Total 32	Unit-4 Bivariate Normal Distribution	1. p. d. f. of a bivariate normal distribution, 2. Marginal and conditional distributions 3. Conditional expectation and conditional variance

P.C Patil

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Annual Teaching Plan

Academic Year: 2020-2021   Semester V   Department -Statistics

Subject - Statistics   Title – Probability Distributions

Paper No. X: Probability Theory - II

Name of teacher – Lohar M. B.

Month: October-November			Module/Unit	Sub-units planned
Lectures 13	Practicals 40	Total 53	Unit-1 Order Statistics	1. Order statistics: definition, derivation of distribution function and density function of the ith order statistic. 2. Derivation of joint p. d. f. of i -th and j-th order statistics
Month: December				
Lectures 14	Practicals 50	Total 64	Unit-1 Order Statistics	1. Distribution of the sample range and sample median when n is odd. 2. Examples and Problems.
			Unit-2 Convergence and Limit Theorem	1. Convergence: Definition and modes of convergence 2. WLLN i. i. d. random variables
Month: January				
Lectures 11	Practicals 45	Total 56	Unit-2 Convergence and Limit Theorem	1. Central Limit Theorem: Statement and proof 2. Simple examples based on Bernoulli, binomial, Poisson and chi-square distribution.
			Unit-3 Finite Markov Chains	1. Definition, examples and classification of stochastic process 2. Markov chain: Definition and examples of Markov chain, 3. Classification of states, simple problems. 4. Stationary probability distribution, applications. 5. Continuous Markov chain: Pure birth process, Poisson process, birth and death process.
Month: February				
Lectures 12	Practicals 35	Total 47	Unit-4 Queuing Theory	1. Basic concepts in queuing theory 2. Distribution of arrival, inter arrival time, departure and service time. 3. Types of queuing models.

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Name and Signature of teacher

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Annual Teaching Plan

Academic Year: 2020-2021 Semester V   Department -Statistics

Subject - Statistics   Title – Sampling Theory & Operation Research

Paper No. XI Sampling Theory

Name of teacher – Bhosale A. B.

Month: October-November			Module/Unit	Sub-units planned
Lectures 14	Practicals 35	Total 49	Unit-1 Basic Terminology and Simple Random Sampling	1. Basic Terminology 2. Simple random sampling, SRSWR, SRSWOR 3. SRS for attributes 4. Determination of the sample size
Month: December				
Lectures 11	Practicals 35	Total 46	Unit-2 Stratified Sampling	1. Stratified random sampling 2. Determination of the sample size under proportional and Neyman allocation 3. Comparison amongst SRSWOR, stratification with proportional allocation and stratification with optimum allocation.
Month: January				
Lectures 13	Practicals 50	Total 63	Unit-3 Other Sampling Methods	1. Systematic Sampling: Real life situations, technique of drawing a sample 2. Comparison of SRS, stratified and systematic sampling when population is in linear trend 3. Circular Systematic Sampling. 4. Cluster Sampling, Two Stage and Multi Stage Sampling, 5. Systematic sampling as a particular case of cluster sampling. 6. Comparison of cluster sampling and SRSWOR
Month: February				
Lectures 10	Practicals 35	Total 45	Unit-4 Sampling Methods using Auxiliary variables	1. Ratio Method: Concept of auxiliary variable and its use in estimation 2. Situations where Ratio method is appropriate. 3. Relative efficiency of ratio estimators with that of SRSWOR 4. Regression Method: Situations where is appropriate. 5. Relative efficiency of regression estimators over SRSWOR

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Annual Teaching Plan

Academic Year: 2020-2021 Semester V   Department -Statistics
Subject - Statistics   Title – Operations Research
Paper No. XII Operations Research
Name of teacher – Pawar V. V.

Month: October-November			Module/Unit	Sub-units planned

Lectures 12	Practicals 15	Total 27	Unit-1 Linear programming	1. Concept and formulation of problem as LPP
				2. Some definitions
				3. Solution of L.P.P.:
				   I. Graphical Method,
				   II. Simplex Method
				   III. Big-M method

Month: December				
Lectures 14	Practicals 20	Total 34	Unit-1 Linear programming	1. Duality Theory 2. Examples and problems.
			Unit-2 Transportation and Assignment Problems	1. Transportation problem(T.P.), some definitions 2. Methods of obtaining IBFS of Transportation problem (T. P.) 3. NWCR, Matrix minima and VAM 4. MODI Method for optimal solution
Month: January				
Lectures 11	Practicals 25	Total 36	Unit-2 Transportation and Assignment Problems	1. Assignment Problem(A.P.) 2. A.P. as a particular case of T.P. 3. Hungerian method to solve(A.P.) 4. Sequencing Problem: Some definitions 5. Procedure of processing n jobs on (a) two machines, (b)three machines and (c) m machines.
			Unit-3 Decision Theory	1. Basic concept and some definitions 2. Type of decision making environments. 3. Decision making under uncertainty 4. Decision making under risk
Month: February				
Lectures 12	Practicals 20	Total 32	Unit-4 Simulation Techniques	1. Meaning of simulation, 2. Methods of generating random numbers 3. Techniques of generating random numbers for discrete and continuous distributions

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Annual Teaching Plan

Academic Year: 2020-2021   Semester I and III   Department -Statistics
Subject - Statistics   Course - CC - 1051 C Title – Business Statistics I
Section I- Business Statistics I
Practicals (B. Sc. I and II)

Name of teacher – Makandar A. M.

Month: October-November			Module/Unit	Sub-units planned
Lectures 34	Practicals 36	Total 70	Unit-1 Introduction to Statistics &Sampling Techniques	1. Meaning and scope of statistics 2. Graphical representation, types of data. 3. Sampling Techniques
Month: December				
Lectures 38	Practicals 28	Total 66	Unit-2 Measures of Central Tendency	1. Concept of central tendency, Mean median and mode, 2. Partition values 3. Empirical relation 4. Examples
Month: January				
Lectures 30	Practicals 52	Total 82	Unit-3 Measures of Dispersion	1. Concept of dispersion and its types 2. Coefficient of variation 3. Examples.
			Unit-4 Analysis of Bivariate Data	1. Correlation: Definition, Types of correlation 2. Methods of studying correlation 3. Illustrative examples.
Month: February				
Lectures 32	Practicals 44	Total 76	Unit-4 Analysis of Bivariate Data	1. Concept of regression 2. Lines of regression 3. Regression coefficients and its Properties 4. Illustrative Examples.

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Name and Signature of teacher

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Annual Teaching Plan

Academic Year: 2020-2021   Semester IV Department -Statistics
Subject - Statistics   Title -Practical II

Practicals B. Sc. II

Name of teacher – Dr. Kumbhar R. R.

Month: March-April			Module/Unit	Sub-units planned
Lectures	Practicals	Total	Practical – II	1. Model sampling from Poisson distribution.
	44	44		2. Model sampling from Geometric distribution.
Month: May				
Lectures	Practicals	Total	Practical – II	1. Model sampling from Negative Binomial distribution
	32	32		2. Fitting of Continuous Uniform distribution
				3. Fitting of Exponential distribution
Month: June				
Lectures	Practicals	Total	Practical – II	1. Fitting of Normal distribution.
	32	32		2. Model sampling from Continuous Uniform and Exponential distribution Model sampling from Normal distribution using: (i) Normal table and (ii) Box-Muller transformation.
Month: July				
Lectures	Practicals	Total	Practical – II	1. Application of Exponential & Normal distribution.
	40	40		2. Fitting of binomial, Poisson & Negative Binomial distribution using MS-EXCEL.
				3. Fitting of Exponential & Normal distribution using MS-EXCEL.

Name and Signature of teacher

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Academic Year: 2020-2021 Semester II and IV   Department -Statistics

Subject - Statistics   Title – Business Statistics – II

Section II Business Statistics – II

Practicals (B. Sc. I and II)

Name of teacher – Makandar A. M.

Month: March-April			Module/Unit	Sub-units planned
Lectures 32	Practicals 40	Total 72	Unit-1 Probability and probability distributions	1.Basic concepts in probability 2.Binomial distribution: Properties and examples 3.Poisson distribution: Properties and examples
Month: May				
Lectures 32	Practicals 40	Total 72	Unit-1 Probability and probability distributions Unit-2 Time Series	1.Normal distribution: Properties and examples 2.Definition, uses and components of time series 3.Methods of determination of trend 4.Numerical examples
Month: June				
Lectures 36	Practicals 52	Total 88	Unit-3 Index Number	1. Meaning and construction of index numbers 2.Types of index numbers 3. Simple and weighted index number. 4. Laspeyre's, Paasche's and Fisher's index numbers. 5.Numerical examples
Month: July				
Lectures 32	Practicals 28	Total 60	Unit-4 Statistical Quality Control	1.Introduction to SQC, Process control, Product control 2.Control charts for variables 3.Control charts for Attributes 4.Examples

Name and Signature of teacher

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Annual Teaching Plan

Academic Year: 2020-2021   Semester II and VI   Department -Statistics

Subject - Statistics   Title -DESCRIPTIVE STATISTICS –II & DISCRETE PROBABITITY DISTRIBUTIONS

Section I- Descriptive Statistics II
Practicals B. Sc. I & III

Name of teacher - Pawar A. A.

Month: March-April			Module/Unit	Sub-units planned
Lectures 14	Practicals 28	Total 42	Unit-1 Correlation	1. Bivariate Random variable 2. Correlation, Types of correlation. 3. Scatter diagram, its utility. 4. Karl Pearson's coefficient of correlation 5. Spearman's rank correlation coefficient
Month: May				
Lectures 12	Practicals 36	Total 48	Unit -2 Regression	1. Concept of regression 2. Equations of regression lines 3. Regression coefficients and its properties.
			Unit-3 Multiple Linear Regression & Multiple and Partial Correlation	1. Concept of multiple linear regressions. 2. Fitting of regression plane
Month: June				
Lectures 13	Practicals 36	Total 49	Unit-3 Multiple and Partial Correlation	1. Multiple and partial correlation coefficients and its properties 2. Examples
Month: July				
Lectures 14	Practicals 32	Total 46	Unit-4 Time Series	1. Meaning ,need and utility 2. components of time series 3. Methods of measurement of trend 4. Measurement of seasonal indices

Pawar A.A

Name and Signature of teacher

Pawar Ajit A

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Annual Teaching Plan

Academic Year: 2020-2021   Semester   II   Department -Statistics

Subject   - Statistics   Title -DESCRIPTIVE STATISTICS –II & DISCRETE PROBABITITY DISTRIBUTIONS

Section II- Discrete Probability Distributions

Name of teacher - Pawar V. V.

Month: March-April			Module/Unit	Sub-units planned
Lectures 8	Practicals 12	Total 20	Unit-1 Some Standard Discrete Probability Distributions- I	1. One point and two point distributions 2. Bernoulli Distribution 3. Discrete Uniform Distribution
Month: May				
Lectures 8	Practicals 16	Total 24	Unit -2 Some Standard Discrete Probability Distributions- II	1. Binomial Distribution 2. Hyper geometric Distribution. 3. Binomial approximation to Hypergeometric distribution
			Unit-3 Discrete Distributions: Poisson, Geometric and Negative Binomial Distribution	1. Poisson Distribution 2. Poisson distribution as a limiting case of Binomial distribution, 3. Examples.
Month: June				
Lectures 9	Practicals 20	Total 29	Unit-3 Discrete Distributions: Poisson, Geometric and Negative Binomial Distribution	1. Geometric Distribution: 2. Negative Binomial Distribution
Month: July				
Lectures 7	Practicals 16	Total 23	Unit-4 Bivariate Discrete Probability Distributions	1. Definition of bivariate discrete random variable ,p.m.f., and c.d.f., 2. Properties of c.d.f. 3. Mathematical Expectation: Definition and it. 4. Conditional mean and variance, covariance and correlation coefficient.

Name and Signature of teacher

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Annual Teaching Plan

Academic Year: 2020-2021   Semester   IV   Department -Statistics

Subject - Statistics   Title –Probability Distributions II and Statistical Methods II

Section I- Probability Distributions II

Name of teacher – Lohar M. B.

Month: March-April			Module/Unit	Sub-units planned
Lectures 11	Practicals 36	Total 47	Unit-1 Gamma and Beta Distributions	1. Gamma distribution 2. Beta distribution of 1st kind
Month: May				
Lectures 12	Practicals 28	Total 40	Unit-1 Gamma and Beta Distributions	1. Beta distribution of 1st kind
			Unit-2 Exact Sampling Distributions	1. Chi-Square distribution 2. Student's t- distribution
Month: June				
Lectures 14	Practicals 32	Total 46	Unit-2 Exact Sampling Distributions	1. Snedecor's F distribution. 2. Inter relation between t, F and χ^2
			Unit-3 Introduction to R	1. Creating, listing and deleting the objects 2. Arithmetic and simple functions 3. Import and export data. 4. Exploratory data analysis
Month: July				
Lectures 11	Practicals 40	Total 51	Unit-4 Numerical Methods	1. Solutions to nonlinear equation 2. Numerical integration 3. Bootstrap methods 4. Examples

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Name and Signature of teacher

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Academic Year: 2020-2021   Semester   IV   Department -Statistics
Subject - Statistics   Title –Probability Distributions II and Statistical Methods II

Section II - Statistical Methods II

Name of teacher – Bhosale A. B.

Month: March-April			Module/Unit	Sub-units planned
Lectures 15	Practicals 8	Total 23	Unit-1 Reliability Theory I	1. Binary Systems 2. Reliability of binary System
Month: May				
Lectures 11	Practicals 12	Total 23	Unit-2 Reliability Theory II	1. Ageing Properties 2. Relationship between survival function and hazard function, density function and hazard rate 3. Hazard rate of a series system
Month: June				
Lectures 12	Practicals 20	Total 32	Unit-3 Testing of Hypothesis I	1. Definitions: Population, sample, hypothesis and types of hypothesis, One and two tailed test 2. Type I and type II errors, level of significance, p-value, Critical region, power of test. 3. Large Sample Tests.
Month: July				
Lectures 15	Practicals 12	Total 27	Unit-4 Testing of Hypothesis II	1. Exact/Small sample tests (based on t, chi-square and F distribution)

Name and Signature of teacher

(Bhosale A. B.)

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Academic Year: 2020-2021   Semester VI   Department -Statistics

Subject - Statistics   Title – Probability Theory & Statistical Inference - II

Paper No. XIII Statistical Inference - I

Name of teacher – Lohar M. B.

Month: March-April			Module/Unit	Sub-units planned
Lectures 13	Practicals 35	Total 48	Unit-1 Point Estimation	1. Concept and definition of Point estimation 2. Definition of an estimator (statistic) & its S.E., 3. Properties of estimator 4. Unbiased estimators and results regarding unbiased estimators
Month: May				
Lectures 12	Practicals 35	Total 47	Unit-1 Point Estimation	1. Relative efficiency 2. Minimum Variance Unbiased Estimator and Uniformly Minimum Variance Unbiased Estimator 3. Consistency
			Unit-2 Likelihood and Sufficiency	1. Definition of likelihood function 2. Sufficiency 3. Pitman Koopman form and sufficient statistic
Month: June				
Lectures 13	Practicals 45	Total 58	Unit-2 Likelihood and Sufficiency	1. Fisher information function 2. Concept of minimal sufficient statistic 3. Illustrative examples.
			Unit-3 Cramer's Rao Inequality	1. Cramer Rao inequality. 2. Minimum Variance Bound Unbiased Estimator (MVBUE) of $\phi(\theta)$. 3. Some results related to MVBUE
Month: July				
Lectures 12	Practicals 40	Total 52	Unit-4 Method of Estimation	1. Method of maximum likelihood 2. Invariance property of MLE, relation between MLE and sufficient statistic. 3. Method of moments 4. Method of minimum chi-square

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Name and Signature of teacher

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Annual Teaching Plan

Academic Year: 2020-2021   Semester II, IV and VI   Department -Statistics
Subject - Statistics   Title –Statistical Inference II

Paper No. XIV Statistical Inference II
Practicals B. Sc. I, II & III

Name of teacher – Patil P.C

Month: March-April			Module/Unit	Sub-units planned
Lectures 14	Practicals 35	Total 49	Unit-1 Interval Estimation	1. Notion of interval estimation and some definitions 2. Pivotal quantity and its use in obtaining confidence intervals and bounds. 3. Interval estimation for the different cases of normal distribution
Month: May				
Lectures 13	Practicals 35	Total 48	Unit-2 Parametric Test	1. Statistical hypothesis, problems of testing of hypothesis. 2. Most Powerful (MP) test. 3. Neyman - Pearson (NP) lemma 4. Likelihood Ratio Test
Month: June				
Lectures 13	Practicals 45	Total 58	Unit-3 Sequential Test	1. General theory of sequential analysis and its comparison with fixed sample procedure. 2. Wald's SPRT of strength (α, β) 3. Illustrations for standard distributions 4. Graphical and tabular procedure for carrying SPRT
Month: July				
Lectures 13	Practicals 40	Total 53	Unit-4 Non – Parametric Test	1. Notion of non-parametric statistical inference (test) and its comparison with parametric statistical inference. 2. Concept of distribution free statistic. 3. Some non-parametric tests: Run test, Sign test, Wilcoxon's signed rank test, Mann-Whitney U –test, Median test, and Kolmogorov Smirnov test

P.C patil

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Patil P.C

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Annual Teaching Plan

Academic Year: 2020-2021   Semester VI   Department -Statistics
Subject - Statistics   Title – Design of Experiment Quality, Management and Data Mining
Paper No. XV Design of Experiment

Name of teacher – Pawar V. V.

Month: March-April			Module/Unit	Sub-units planned
Lectures 11	Practicals 20	Total 31	Unit-1 Simple Design of Experiment I	1. Basic terms in design of experiments, 2. Principles of design of experiments 3. Completely Randomized Design (CRD)
Month: May				
Lectures 12	Practicals 20	Total 32	Unit-2 Simple Design of Experiment II	1. Randomized Block Design (RBD) 2. Latin Square Design (LSD) 3. Missing plot technique for RBD and LSD 4. Identification of real life situations where CRD, RBD and LSD are used.
Month: June				
Lectures 14	Practicals 20	Total 34	Unit-3 Efficiency of design and ANOCOVA	1. Efficiency of design 2. Analysis of Covariance (ANOCOVA) with one concomitant variable: Purpose of ANOCOVA 3. Practical situations 4. Estimation of parameters 5. Preparation of analysis of covariance table.
Month: July				
Lectures 11	Practicals 25	Total 36	Unit-4 Factorial Experiment	1. Concept of factorial experiments 2. Definitions of main effects and interaction effects 3. ANOVA for 2^2 and 2^3 factorial experiments arranged in RBD. 4. Total confounding and Partial Confounding 5. Construction of layout in total confounding and partial confounding in 2^3 factorial experiment.

Name and Signature of teacher

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Vivekanand College, Kolhapur
(Autonomous)

Annual Teaching Plan

Academic Year: 2020-2021   Semester VI   Department -Statistics

Subject - Statistics   Title – Design of Experiment Quality, Management and Data Mining

Paper No. XVI Quality Management and Data Mining

Name of teacher – Bhosale A.B.

Month: March-April			Module/Unit	Sub-units planned
Lectures 13	Practicals 40	Total 53	Unit-1 Quality Tools	1. Meaning and dimensions of quality 2. Seven magnificent tools of quality 3. Deming's PDCA cycle and its applications.
Month: May				
Lectures 10	Practicals 35	Total 45	Unit-2 Process Control	1. CUSUM chart, tabular form, 2. Moving average and exponentially weighted moving average charts. 3. Six-sigma methodology, 4. DMAIC cycle and case studies
Month: June				
Lectures 13	Practicals 40	Total 53	Unit-3 Product Control	1. Sampling Inspection plans for attribute inspection: Concept of AQL, LTPD, Consumer's risk, and producer's risk, AOQ, AOQL, OC, ASN and ATI. 2. Single and double sampling plans
Month: July				
Lectures 14	Practicals 50	Total 64	Unit-4 Data Mining	1. Data preparation for knowledge discovery 2. CRISP and SEEMA methods 3. Supervised and unsupervised learning techniques

Name and Signature of teacher

(Bhosale A. B.)

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