Annual Teaching Plan

Academic year 2019-2020   Semester I   Department -Statistics

Subject - Statistics   Course -DSC-1004A   Title -DESCRIPTIVE STATISTICS –I &
ELEMENTARY PROBABITITY THEORY

Section I- Descriptive Statistics I

B. Sc. II Practical & B. Sc. III Practical

Name of teacher - Pawar A. A.

Month: June-July			Module/Unit	Sub-units planned
Lectures 22	Practicals 80	Total 102	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-August				
Lectures 12	Practicals 97	Total 109	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-September				
Lectures	Practicals	Total	Unit-2 Measures of Dispersion	1. Definition of variance and standard deviation with its properties 2. Coefficient of variation
11	64	75	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- October				
Lectures 14	Practicals 60	Total 74	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 & Signature of Teacher

Pawar Ajit A.

Ms. Pawar V.V.
Head
Department of Statistics
Vivekanand College, Kolhapur

Annual Teaching Plan

Academic year 2019-2020   Semester I   Department -Statistics

Subject - Statistics   Course -DSC-1004A   Title -DESCRIPTIVE STATISTICS –I &
ELEMENTARY PROBABITITY THEORY

Section II- Elementary Probability Theory

B. Sc II Practical

Name of teacher - Pawar V. V.

Month: June-July			Module/Unit	Sub-units planned
Lectures 14	Practicals 36	Total 50	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-August				
Lectures 07	Practicals 48	Total 55	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-September				
Lectures	Practicals	Total	Unit-2 Probability	1. Some theorems on probability 2. Definition of probability in terms of odd ratio.
8	28	36	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- October				
Lectures 07	Practicals 28	Total 35	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

Name & Signature of Teacher

(Ms. Pawar V. V.)

Ms. Pawar V.V.

Head
Department of Statistics
Vivekanand College, Kolhapur
(Autonomous)

Annual Teaching Plan

Academic year 2019 -2020   Semester III   Department -Statistics

Subject - Statistics   Course -DSC-1004C   Title –Probability Distributions I and Statistical Methods I

Section I- Probability Distributions I

Name of teacher – Lohar M. B.

Month: June-July			Module/Unit	Sub-units planned
Lectures 23	Practicals 16	Total 43	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-August				
Lectures 11	Practicals 16	Total 27	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-September				
Lectures 11	Practicals 16	Total 27	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- October				
Lectures 10	Practicals 20	Total 30	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 & Signature of Teacher

Lohar M·B

Ms. Pawar V.V.

Head

Department of Statistics

Vivekanand College, Kolhapur

(Autonomous)

Annual Teaching Plan

Academic year 2019 -2020 Semester III   Department -Statistics

Subject - Statistics   Course -DSC-1004C   Title –Probability Distributions I and Statistical Methods I

Section II - Statistical Methods I

Name of teacher – Bhosale A. B.

Month: June-July			Module/Unit	Sub-units planned
Lectures 21	Practicals 20	Total 41	Unit-1 Index Number	1. Meaning and utility of index numbers. 2. Types of index numbers.
Month-August				
Lectures 13	Practicals 16	Total 29	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-September				
Lectures 12	Practicals 16	Total 28	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- October				
Lectures 13	Practicals 16	Total 29	Unit-4 Chebychev's Inequality	1. Chebycheve's inequality for discrete, continuous distributions.

Name & Signature of Teacher

(Bhosale A-B-)

Ms. Pawar V.V.
Head
Department of Statistics
Vivekanand College, Kolhapur
(Autonomous)

Annual Teaching Plan

Academic year 2019 -2020   Semester   V   Department -Statistics

Subject   - Statistics   Title –Probability Distributions

Section I- Probability Distributions I

B. Sc. I Practical Paper I

Name of teacher – Patil P. C.

Month: June-July			Module/Unit	Sub-units planned
Lectures `22	Practicals 81	Total 103	Unit-1 Univariate Continuous Probability Distributions	1. Laplace (Double Exponential) Distribution 2. Lognormal Distribution 3. Cauchy Distribution
Month-August				
Lectures 11	Practicals 81	Total 92	Unit -1 Univariate Continuous Probability Distributions	1. Weibull Distribution 2. Relation of Weibull distribution with gamma and exponential distribution, examples and problems.
			Unit-2 Univariate and Multivariate Probability Distributions	1. Logistic distribution 2. Pareto distribution 3. Power series distribution and its particular cases
Month-September				
Lectures 11	Practicals 76	Total 87	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 $N(\mu, \sigma^2)$ 5. Truncated exponential distribution
Month- October				
Lectures 11	Practicals 85	Total 96	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

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Name & Signature of Teacher

Patil P. C

Ms. Pawar V.V.

Head

Department of Statistics

Vivekanand College, Kolhapur

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Annual Teaching Plan

Academic year 2019 -2020   Semester V   Department -Statistics

Subject - Statistics   Title –Statistical Inference I

Paper No. X Statistical Inference I

Name of teacher – Lohar M. B.

Month: June-July			Module/Unit	Sub-units planned
Lectures 21	Practicals 45	Total 66	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-August				
Lectures 11	Practicals 45	Total 56	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-September				
Lectures 12	Practicals 40	Total 52	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- October				
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

Name & Signature of Teacher

Lohar M. B

Ms. Pawar V.V.

Head
Department of Statistics
Vivekanand College, Kolhapur
(Autonomous)

Annual Teaching Plan

Academic year 2019 -2020   Semester   V   Department -Statistics

Subject - Statistics   Title –Design of Experiment

Paper No. XI Design of Experiment

Name of teacher – Bhosale A. B.

Month: June-July			Module/Unit	Sub-units planned
Lectures 21	Practicals 40	Total 61	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-August				
Lectures 14	Practicals 45	Total 59	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-September				
Lectures 12	Practicals 40	Total 52	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- October				
Lectures 13	Practicals 40	Total 53	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 & Signature of Teacher

(Bhosale A. B.)

Ms. Pawar V.V.

Head

Department of Statistics

Vivekanand College, Kolhapur

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Academic year 2019 -2020   Semester   V   Department -Statistics

Subject - Statistics   Title – Operations Research

Paper No. XII Operations Research

Name of teacher – Pawar V.V.

Month: June-July			Module/Unit	Sub-units planned
Lectures 22	Practicals 20	Total 44	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-August				
Lectures 11	Practicals 20	Total 31	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-September				
Lectures 11	Practicals 20	Total 31	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- October				
Lectures 10	Practicals 20	Total 30	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

Name & Signature of Teacher

Ms. Pa

Ms. Pawar V.V.
Head
Department of Statistics
Vivekanand College, Kolhapur

Annual Teaching Plan

Academic year 2019 -2020   Semester   III   Department -Statistics

Subject   - Statistics   Course - CC - 1051 C Title – Business Statistics I
Section I- Business Statistics I
B. Sc. I Practical & B. Sc. II Practical
Name of teacher – Makandar A.M.

Month: June-July			Module/Unit	Sub-units planned
Lectures 29	Practicals 52	Total 81	Unit-1 Introduction to Statistics &Sampling Techniques	1. Meaning and scope of statistics 2. Graphical representation, types of data. 3. Sampling Techniques
Month-August				
Lectures 15	Practicals 44	Total 59	Unit-2 Measures of Central Tendency	1. Concept of central tendency, Mean median and mode, 2. Partition values 3. Empirical relation 4. Examples
Month-September				
Lectures 15	Practicals 48	Total 63	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- October				
Lectures 15	Practicals 48	Total 63	Unit-4 Analysis of Bivariate Data	1. Concept of regression 2. Lines of regression 3. Regression coefficients and its Properties 4. Illustrative Examples.

Name & Signature of Teacher

Makandar A M

Ms. Pawar V.V.
Head
Department of Statistics
Vivekanand College, Kolhapur
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Academic year 2019 -2020   Semester   III   Department -Statistics

Subject - Statistics   Course - CC - 1051 C Title – Business Statistics I
Section I- Business Statistics I

Name of teacher – Lohar. M.B.

Month: June-July			Module/Unit	Sub-units planned
Lectures 08	Practicals 00	Total 08	Unit-1 Introduction to Statistics &Sampling Techniques	4. Meaning and scope of statistics 5. Graphical representation, types of data. 6. Sampling Techniques
Month-August				
Lectures 04	Practicals 00	Total 04	Unit-2 Measures of Central Tendency	5. Concept of central tendency, Mean median and mode, 6. Partition values 7. Empirical relation 8. Examples
Month-September				
Lectures 03	Practicals 00	Total 03	Unit-3 Measures of Dispersion	4. Concept of dispersion and its types 5. Coefficient of variation 6. Examples.
			Unit-4 Analysis of Bivariate Data	4. Correlation: Definition, Types of correlation 5. Methods of studying correlation 6. Illustrative examples.
Month- October				
Lectures 03	Practicals 00	Total 03	Unit-4 Analysis of Bivariate Data	5. Concept of regression 6. Lines of regression 7. Regression coefficients and its Properties 8. Illustrative Examples.

Name & Signature of Teacher

Lohar M.B

Ms. Pawar V.V.
Head
Department of Statistics
Vivekanand College, Kolhapur

Annual Teaching Plan

Academic year 2019 -2020   Semester II   Department -Statistics

Subject - Statistics   Course -DSC-1004B   Title -DESCRIPTIVE STATISTICS –II & DISCRETE PROBABITY DISTRIBUTIONS

Section I- Descriptive Statistics II

B. Sc. II Practical & B. Sc. III Practical

Name of teacher - Pawar A. A.

Month: November			Module/Unit	Sub-units planned
Lectures 08	Practicals 48	Total 56	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: December				
Lectures 13	Practicals 85	Total 98	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: January				
Lectures 13	Practicals 91	Total 104	Unit-3 Multiple and Partial Correlation	1. Multiple and partial correlation coefficients and its properties 2. Examples
Month: February				
Lectures 13	Practicals 67	Total 80	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

Name & Signature of Teacher

Pawar Ajit A

Ms. Pawar V.V.

Head
Department of Statistics
Vivekanand College, Kolhapur
(Autonomous)

Annual Teaching Plan

Academic year 2019 -2020   Semester II   Department -Statistics

Subject - Statistics   Course -DSC-1004B   Title -DESCRIPTIVE STATISTICS –II & DISCRETE
PROBABITITY DISTRIBUTIONS

Section II- Discrete Probability Distributions

B. Sc II Practical

Name of teacher - Pawar V. V.

Month: November			Module/Unit	Sub-units planned
Lectures 06	Practicals 24	Total 30	Unit-1 Some Standard Discrete Probability Distributions- I	1. One point and two point distributions 2. Bernoulli Distribution 3. Discrete Uniform Distribution
Month: December				
Lectures 8	Practicals 40	Total 48	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: January				
Lectures 9	Practicals 44	Total 53	Unit-3 Discrete Distributions: Poisson, Geometric and Negative Binomial Distribution	1. Geometric Distribution: 2. Negative Binomial Distribution
Month: February				
Lectures 7	Practicals 28	Total 35	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 & Signature of Teacher
Ms. Pawar V.V.)

Ms. Pawar V.V.
Head
Department of Statistics
Vivekanand College, Kolhapur
(Autonomous)

Annual Teaching Plan

Academic year 2019 -2020   Semester   IV   Department -Statistics

Subject - Statistics   Course -DSC-1004D   Title –Probability Distributions II and Statistical Methods II

Section I- Probability Distributions II

Name of teacher – Lohar M. B.

Month: November-December			Module/Unit	Sub-units planned
Lectures 24	Practicals 16	Total 40	Unit-1 Gamma and Beta Distributions	1. Gamma distribution 2. Beta distribution of 1st kind
Month:January				
Lectures 13	Practicals 20	Total 33	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: February-March				
Lectures	Practicals	Total	Unit-2 Exact Sampling Distributions	1. Snedecor's F distribution. 2. Inter relation between t, F and χ^2
23	32	55	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: April-May				
Lectures 11	Practicals 16	Total 27	Unit-4 Numerical Methods	1. Solutions to nonlinear equation 2. Numerical integration 3. Bootstrap methods 4. Examples

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Name & Signature of Teacher

Lohar M.B

Ms. Pawar V.V.
Head
Department of Statistics
Vivekanand College, Kolhapur
(Autonomous)

Annual Teaching Plan

Academic year 2019 -2020   Semester   IV   Department -Statistics

Subject - Statistics   Course -DSC-1004D   Title –Probability Distributions II and Statistical Methods II

Section II - Statistical Methods II

Name of teacher – Bhosale A. B.

Month: November-December			Module/Unit	Sub-units planned
Lectures 24	Practicals 12	Total 36	Unit-1 Reliability Theory I	1. Binary Systems 2. Reliability of binary System
Month: January				
Lectures 14	Practicals 20	Total	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: February-March				
Lectures 24	Practicals 24	Total 48	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: April-May				
Lectures 12	Practicals 20	Total 32	Unit-4 Testing of Hypothesis II	1. Exact/Small sample tests (based on t, chi-square and F distribution)

Name & Signature of Teacher

(Bhosale A-B-)

Ms. Pawar V.V.

Head

Department of Statistics

Vivekanand College, Kolhapur

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Academic year 2019 -2020   Semester   VI   Department -Statistics

Subject   - Statistics   Title –Probability Theory

Paper No. XIII Probability Theory

Name of teacher – Bhosale A. B.

Month : November -December			Module/Unit	Sub-units planned
Lectures 18	Practicals 40	Total 58	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 3. Distribution of the sample range and sample median when n is odd. 4. Examples and Problems.
Month- January				
Lectures 15	Practicals 45	Total 60	Unit-2 Convergence and Limit Theorem	1. Convergence: Definition and modes of convergence 2. WLLN i. i. d. random variables 3. Central Limit Theorem: Statement and proof 4. Simple examples based on Bernoulli, binomial, Poisson and chi-square distribution.
Month- February-March				
Lectures 22	Practicals 80	Total 102	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- April-May				
Lectures 10	Practicals 40	Total 50	Unit-4 Queing Theory	1. Basic concepts in queuing theory 2. Distribution of arrival, inter arrival time, departure and service time. 3. Types of queuing models.

Name & Signature of Teacher

(Bhosale A.B)

Ms. Pawar V.V.
Head
Department of Statistics
Vivekanand College, Kolhapur
(Autonomous)

Academic year 2019 -2020   Semester VI   Department -Statistics

Subject - Statistics   Title –Statistical Inference II

Paper No. XIV Statistical Inference II

Name of teacher – Lohar M. B.

Month: November -December			Module/Unit	Sub-units planned
Lectures 16	Practicals 35	Total 51	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: January				
Lectures 14	Practicals 50	Total 64	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: February-March				
Lectures 23	Practicals 65	Total 88	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: April-May				
Lectures 12	Practicals 40	Total 52	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

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Name & Signature of Teacher

Lohar M.B

Ms. Pawar V.V.
Head
Department of Statistics
Vivekanand College, Kolhapur
(Autonomous)

Annual Teaching Plan

Academic year 2019 -2020   Semester   VI   Department -Statistics

Subject   - Statistics   Title –Sampling Theory

Paper No. XV Sampling Theory

Name of teacher – Pawar V.V.

Month: November -December			Module/Unit	Sub-units planned
Lectures 14	Practicals 20	Total 34	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: January				
Lectures 13	Practicals 20	Total 33	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 :February-March				
Lectures 23	Practicals 45	Total 68	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: April-May				
Lectures 11	Practicals 25	Total 36	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

Name & Signature of Teacher

Ms. Pawar V.V.
Head
Department of Statistics
Vivekanand College, Kolhapur
(Autonomous)

Academic year 2019 -2020   Semester   VI   Department -Statistics

Subject   - Statistics   Title –Quality Management and Data Mining

Paper No. XVI Quality Management and Data Mining

B. Sc. I Practical

Name of teacher – Patil P. C.

Month: November -December			Module/Unit	Sub-units planned
Lectures 18	Practicals 71	Total 89	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: January				
Lectures 13	Practicals 95	Total 108	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: February-March				
Lectures 27	Practicals 137	Total 164	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: April-May				
Lectures 10	Practicals 76	Total 86	Unit-4 Data Mining	1. Data preparation for knowledge discovery 2. CRISP and SEEMA methods 3. Supervised and unsupervised learning techniques

P.C Patil

Name & Signature of Teacher

Patil P.C

Ms. Pawar V.V.

Head

Department of Statistics

Vivekanand College, Kolhapur

(Autonomous)

Annual Teaching Plan

Academic year 2019-2020 Semester V & VI   Department -Statistics

Subject - Statistics   Title -B.Sc. III **Practical**

Name of teacher – Barale M. S.

Month: June-July			Module/Unit	Sub-units planned
Class	Practicals 65	Total 65	Practical	Model sampling from Laplace and Cauchy distributions Model sampling from pareto distribution Analysis of CRD and RBD. Analysis of Latin Square Design (LSD). Missing Plot Technique for RBD and LSD with one missing observation Model sampling from Laplace and Cauchy distributions Model sampling from pareto distribution
B. Sc III				
Month: August				
Class	Practicals 65	Total 65	Practical	Efficiency of i) RBD over CRD and ii) LSD over CRD and RBD Analysis of Covariance in CRD. Model sampling from truncated binomial and poison distributions. Model sampling from truncated normal and exponential distributions .Model sampling from bivariate normal distribution.
B. Sc III				
Month: September				
Class	Practicals 60	Total 60	Practical	Analysis of Covariance in RBD. Analysis of 22 and 23 Factorial Experiment Fitting of truncated binomial distribution. Fitting of truncated Poisson distribution.
B. Sc III				
Month: October				
Class	Practicals 60	Total 60	Practical	Application of multinomial distribution. Application of bivariate normal distribution.. Total Confounding. Partial Confounding
B. Sc III				
Month: November December				Six sigma limits for mean..

Class	Practicals 55	Total 55	Practical	Data input/output, diagrammatic and graphical representation of datausing R-Software Computation of probabilities of type I and type II errors and power of a test using RSoftware. 24 .Model sampling from log-normal and Weibull distributions using R-Software. Single sampling plan-I (Small sample). Single sampling plan-II (Large sample).
B.sc III				
Month: January				
Class	Practicals 70	Total 70	Practical	EWMA-Chart. Model sampling from logistic distribution using R-Software. Fitting of Binomial and Poisson distributions using R-Software. Fitting of Normal distribution using R-Software
B. Sc III				
Month: February -March				
Class	Practicals 110	Total 110	Practical	CUSUM chart. Six sigma limits for mean.. Fitting of log-normal distribution using R-Software. Analysis of Randomized Block Design (RBD)using R-Software. k-nearest neighbor technique for classification. Double sampling plan-II (Large sample).
B. Sc III				
Month: April-May				
Class	Practicals 65	Total 65	Practical	Analysis of Completely Randomized Design (CRD)using R-Software. Double sampling plan-I (Small sample. k-means technique for clustering
B. Sc III				

Name & Signature of Teacher

Mr. Barale M.S .

Ms. Pawar V.V

Head

Department of Statistics

Vivekanand College, Kolhapur

(Autonomous)

Annual Teaching Plan

Academic year 2019-2020   Semester   IV   Department -Statistics

Subject - Statistics   Title – Business Statistics – II
                                     Section II Business Statistics – II

                          B. Sc. I Practical & B. Sc. II Practical

Name of teacher – Makandar A.M.

Month: November -December			Module/Unit	Sub-units planned
Lectures 22	Practicals 52	Total 74	Unit-1 Probability and probability distributions	1.Basic concepts in probability 2.Binomial distribution: Properties and examples 3.Poisson distribution: Properties and examples
Month: January				
Lectures 18	Practicals 52	Total 70	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: February-March				
Lectures 31	Practicals 94	Total 125	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: April-May				
Lectures 15	Practicals 48	Total 63	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

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Name & Signature of Teacher
Makandar H·M

ESTD. JUNE 1964

Ms. Pawar V.V
Head
Department of Statistics
Vivekanand College, Kolhapur
(Autonomous)

Annual Teaching Plan

Academic year 2019 -2020   Semester   III   Department -Statistics

Subject   - Statistics   Course - CC - 1051 C Title – Business Statistics I
Section I- Business Statistics I
Name of teacher – Bhosale. A.B.

Month: June-July			Module/Unit	Sub-units planned
Lectures 07	Practicals 00	Total 07	Unit-1 Introduction to Statistics &Sampling Techniques	7. Meaning and scope of statistics 8. Graphical representation, types of data. 9. Sampling Techniques
Month-August				
Lectures 04	Practicals 00	Total 04	Unit-2 Measures of Central Tendency	9. Concept of central tendency, Mean median and mode, 10. Partition values 11. Empirical relation 12. Examples
Month-September				
Lectures 04	Practicals 00	Total 04	Unit-3 Measures of Dispersion	7. Concept of dispersion and its types 8. Coefficient of variation 9. Examples.
			Unit-4 Analysis of Bivariate Data	7. Correlation: Definition, Types of correlation 8. Methods of studying correlation 9. Illustrative examples.
Month- October				
Lectures 04	Practicals 00	Total 04	Unit-4 Analysis of Bivariate Data	9. Concept of regression 10. Lines of regression 11. Regression coefficients and its Properties 12. Illustrative Examples.

Name & Signature of Teacher

(Bhosale A. B.)

Ms. Pawar V.V

Head
Department of Statistics
Vivekanand College, Kolhapur
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Academic year 2019-2020   Semester   IV   Department -Statistics

Subject   - Statistics   Title – Business Statistics – II
                          Section II Business Statistics – II

Name of teacher – Lohar. M.B.

Month: November -December			Module/Unit	Sub-units planned
Lectures 06	Practicals 00	Total 06	Unit-1 Probability and probability distributions	1.Basic concepts in probability 2.Binomial distribution: Properties and examples 3.Poisson distribution: Properties and examples
Month: January				
Lectures 04	Practicals 00	Total 04	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: February-March				
Lectures 08	Practicals 00	Total 08	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: April-May				
Lectures 03	Practicals 00	Total 03	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

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Name & Signature of Teacher

Lohar M.B.

Ms. Pawar V.V
Head
Department of Statistics
ivekanand College, Kolhapur
(Autonomous)

Annual Teaching Plan

Academic year 2019-2020   Semester IV   Department -Statistics

Subject - Statistics   Title – Business Statistics – II
Section II Business Statistics – II

Name of teacher – Bhosale A.B.

Month: November -December			Module/Unit	Sub-units planned
Lectures 04	Practicals 00	Total 04	Unit-1 Probability and probability distributions	1.Basic concepts in probability 2.Binomial distribution: Properties and examples 3.Poisson distribution: Properties and examples
Month: January				
Lectures 05	Practicals 00	Total 05	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: February-March				
Lectures 06	Practicals 00	Total 06	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: April-May				
Lectures 06	Practicals 00	Total 06	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 & Signature of Teacher

(Bhosale A.B)

Ms. Pawar V.V.
Head
Department of Statistics
Vivekanand College, Kolhapur
(Autonomous)