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| Name of the Assistant Professor: Dr. SUDESH | |
| Class and Section: B.Sc. mathhons (4th Semester) | |
| Subject: STATISTICS | |
| Paper: ELEMENTARY INFERENCE | |
| **APRIL** | |
| Week 1: Definition of Parameter and Statistic ,Standard error of estimate, Point and interval estimation | |
| Week 2: Unbiasednes, Efficiency | |
| Week3*:* Consistency and Sufficiency | |
| Week4*:* Revision and test | |
| **MAY** |
| Week 1: Method of maximum likelihood estimation, Null and alternative hypothesis |
| Week 2: Simple and alternative hypothesis, critical region , level of significance |
| Week3: one tailed test and two tailed test, Types of error, Neyman - Pearson Lemma |
| Week4: Testing and interval estimation of a single mean, single proportion, two means  and two proportion, Fisher Z transformation |
| **JUNE** |
| Week1: Definition of Chi-Square test for goodness of fit and independence of attributes |
| Week2: Definition of student t and Snedcor F –Statistics ,Testing for mean and  variances of univariate normal distributions |
| Week3: Testing of equality of two means and two variances of two univariate normal  Distributions |
| Week4: Analysis of variance for one-way and two-way classified data |

**Lesson Plan Academic Session 2021-22**

**Subject – Statistics Class – BSc (Hons) (Sem 6th)**

**Paper – Operation Research II Name – Dr. Sandeep Kumar**

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| **Week** | **Syllabus** |
| March  Week 5 | Inventory Control : introduction of inventory, factors affecting inventory, inventory models. |
| April  Week 1 | Deterministic models : Economic order quantity model when shortages are allowed / not allowed. |
| April  Week 2 | Price discounts model, multi-item inventory models. |
| April  Week 3 | Queuing Theory : Basic Characteristics of queuing system. |
| April  Week 4 | Birth-death equations, Steady state solution of Markovian queuing models with single and multiple servers. |
| May  Week 1 | With limited capacity (M/M/1/K and M/M/c/K). |
| May  Week 2 | Replacement Problems : Replacement of items whose running cost increases with time. |
| May  Week 3 | Replacement policies for the items that fail completely – Individual and the group replacement policies. |
| May  Week 4 | PERT and CPM : Introduction of PERT and CPM. |
| June  Week 1 | Earliest and lates times, Determination of critical path various types of floates. |
| June  Week 2 | Probablistic and Cost consideration in project scheduling |
| **June**  **Week 3** | **Sequencing problems : Processing of n jobs through 2 machines, n jobs through 3 machines.** |
| **June**  **Week 4** | **2 jobs through m machines, n jobs through m machines** |
| **June**  **Week 5** | **Revision and test** |

**Lesson Plan Academic Session 2021-22**

Subject - Statistics Class: B. Sc. III (VI Sem)

Paper: - Operations Research & Statistical Quality Control Name: Dr. Permila

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| **Week** | **Syllabus** |
| April 1st &April 2nd | Operations Research: Definitions, Nature Objectives, Scope and Importance. |
| April 3rd | Operation Research Models: Classification, Formulation, Principle of Modeling, Characteristics of a Good Model |
| April 4th | Advantages & Disadvantages. Applications of Operations Research Models. Linear Programming Problem: Definitions (Including General Form) |
| April 5th | Formulation (with Real Life examples) and Graphical Solution of LPP. Solution of Linear Programming Problems (LPP) by using Simplex Method. |
| May 1st | Degeneracy problems and their solutions.Transportation Problem (TP): Definition Formulation of a LPP as TP. Initial Basic Feasible Solution of TP by North-West Corner Rules, Row Minima Method |
| May 2nd | Column Minima Method, Matrix Minima Method (Least cost entry method) and Vogel’s Approximation Method. Assignment Problem: Definition and its Solution. |
| May 3rd | Statistical Quality Control: Meaning and uses of SQC, Causes of Variations in Quality, Product and Process Control, Control Charts, 3- Control Limits, Control Chart for Variables-X and R Chart |
| May 4th | Criteria for Detection of Lack of Control in X & R Charts, Interpretation of X & R Charts, Control Chart for Standard Deviation ( charts), Control Charts for Attributes- p and c Charts. |
| May 5th & June1st | Acceptance Sampling: Problem of Lot Acceptance, Stipulation of good and bad Lots,Producer’s and Consumers Risks, Single and Double Sampling Plans, their OC Functions |
| June 2nd | Concepts of AQL, LTPD, AOQL, Average Amount of Inspection and ASN Function, Rectifying Inspection Plans. Sampling Inspection Plans. |
| June 3rd | Demand Analysis: Laws of Supply and Demand, Price Elasticity of Demand, Demand Function with Constant Price Elasticity, Partial Elasticities of Demands (Income Elasticity & Cross Elasticity) |
| June 4th | Types of Data required for Estimating Elasticities,Family Budget DataTime Series Data, Leontief’s and Pigous’s Methods from Time Series Data to Estimate Demand Functions. |
| June 5th | Engel’s Law, Pareto’s Law of Income Distribution, Curves of Concentration, Lorenz Curve and Gini’s Coefficient. |

**Lesson Plan**

**Academic Session 2021-2022**

**Subject : Statistics Class : B.A/Bsc 4 sem**

**Paper : Parametric and Non-Parametric Tests, Design of Experiment. Name : Dr. Jyoti**

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| Week | **APRIL TO 30 JUNE** |
|  | **April 2022** |
| Week 1 | Chi-square distribution definition, Derivation |
| Week2 | Moment Generating Function, Cumulant Generating Function, Mean, Mode, Skewness, Additive Property, Conditions For the validity, Chi-square test of goodness of fit, Contingency table |
| Week 3 | Coefficient of contingency, test of independence of attributes in a contingency table, T and F statistics Definition, Derivation of Student’s ‘t’, constants of distribution. |
| Week 4 | Limiting form of t-distribution, Definition & derivation of Snedcor’s F distribution, Constants of F- Distribution, Mode of F- Distribution, Relationship Between T,F and chi-square distribution. |
|  | **MAY 2022** |
| Week 1 | Testing for the mean and variance of univariate normal distributions, Related confidence intervals, Testing for the significance of sample correlation coefficient in sampling from bivariate normal distribution. |
| Week 2 | Nonparametric Tests: Definition of order statistics and their distributions, sign test for univariate and bivariate distribution run test |
| Week 3 | Median test, Kolmogorove – Simrnov one sample test, Kolmogorove-Simrnov two sample test |
| Week 4 | Mann Whitney U-test (only applications without derivation), Analysis of variance (ANOVA) : Definition, assumptions for ANOVA test |
| Week 5 | one-way and two-way classifications for fixed effect model with one observation per cell, Introduction to design and experiment, terminology, Experiment, Treatment, Experimental unit, blocks, experimental error, replication, precision. |
|  | **JUNE 2022** |
| Week 1 | efficiency of a design, need for design of experiments, size and shape of plots and blocks, Fundamental principles of design, randomization, replication and local control, completely randomized design. |
| Week 2 | randomized Block Design, their layout, statistical analysis, applications, advantages, dis-advantages, and efficiency of RBD relative to CRD, Latin square design (LSD) standard Latin square design. |
| Week 3 | layout of LSD, its statistical analysis, applications, merits and de-merits, Factorial designs – 22 and 23 designs, illustrations, main effects and interaction effects. |
| Week 4 | Yate’s method for computing main and interaction effects. |