

OBJECTIVES: To enable the students

- To improve SQC in industry
- To identify potential reliability problems as early as possible
- To understand the effect of critical use, design and environmental parameters
- Control Chart : To find any special causes of variation as well as to reflect the process improvements that have been made.
- Quality: It is used by companies to focus the goals from the quality policy into plans for improvements.
- To explain how system reliability can be measured and how reliability growth models can be used for reliability prediction.

COURSE

UNIT – I: Importance of SQC in industry, statistical basis of shewart control charts, uses of control charts. Interpretation of control charts, control limits, Natural tolerance limits and specification limits.

UNIT–II: Variable Control Chart: Construction of \bar{X} , R charts for variables, Attribute control charts- NP, P charts, C chart.

UNIT–III: Acceptance sampling plans: Scope, Producer's risk and consumer's risk . Concepts of AQL and LTPD.

UNIT–IV: Sampling Plans: Single and double sampling plans, OC and ASN functions, Double and single Sampling plans for attributes using Binomial.

UNIT–V: Reliability: Introduction, failure rates, Hazard function, estimation of reliability, exponential distribution as life model, its memory less property.

TEXT BOOKS:

1. BA/B.Sc III year paper - IV Statistics - applied statistics - Telugu academy by Prof.K.Srinivasa Rao, Dr D.Giri. Dr A.Anand, Dr V.Papaiah Sastry, 2016
2. Fundamentals of applied statistics : VK Kapoor and SC Gupta, 2014
3. S.K Sinha: Reliability and life testing. Wiley Eastern, 2014

REFERENCE BOOKS :

- 1.. R.C.Gupta: Statistical Quality Control, 2015

OBJECTIVES: To enable the students

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Conduct any 6 (Ms-exel is compulsory)

1. Construction of (\bar{X}, R) charts.
2. Construction of P-chart-Fixed sample size.
3. Construction of P-chart-variable sample size
4. Construction of NP-Chart .
5. Construction of C-Chart.
6. MS-Excel methods for the Serial Numbers 1.
7. MS-Excel methods for the Serial Numbers 2 to 4 .

TEXT BOOKS:

1. BA/BSc III year paper - IV Statistics - applied statistics - Telugu academy by Prof.K.Srinivasa Rao, Dr D.Giri. Dr A.Anand, Dr V.Papaiah Sastry, 2016
2. Fundamentals of applied statistics : VK Kapoor and SC Gupta, 2014
3. S.K Sinha: Reliability and life testing. Wiley Eastern, 2014

REFERENCE BOOKS:

- 1.. R.C.Gupta: Statistical Quality Control, 2015

OBJECTIVES:

- To find the optimal solution of an optimization problem
- It graphically displays interdependent relationships between groups steps and tasks as they all impact a project.
- The two analytic techniques for planning scheduling and controlling of projects

COURSE :

UNIT- I: Introduction and Definition of General Linear Programming Problem(LPP) , formulation of LPP, Matrix form of LPP, Graphical Solution of LPP, Simplex Method – Slack variables.

UNIT- II: Simplex Method – Artificial variable techniques - Big M-Method, Two Phase Method, Degeneracy problem, Method to resolve Degeneracy. Revised Simplex Method.

UNIT- III: Duality, primal to dual and dual to primal, General rules of converting any primal to into its Dual, Statement of fundamental theorem of duality, Dual simplex method.

UNIT- IV: Integer Programming Problem: Introduction and its applications, Branch and Bound (upto two branch problems only), Gomorey's Cutting plane method.

UNIT- V: Network diagram representation, time estimates and critical path in network analysis – Forward pass computations, Backward pass computations, Determination of critical path (CPM), Project Evaluation and Review Technique (PERT)-expected time, and variance and expected duration of the project with simple examples.

BOOKS FOR STUDY:

1. Operations research – S.D. Sharma,2014
2. Operations research – Taha. H.A.,2014

BOOKS FOR REFERENCE:

1. Operations research –Wagner,2015
2. Operations research – Kanthi swaroop ,2012
3. Operations research – V.K. Kapoor,2014
4. Operations research – Kanthi swaroop and other.,2012
5. Linear Programming - Hadley G,2014

ST.JOSEPH'S COLLEGE FOR WOMEN (AUTONOMOUS), VISAKHAPATNAM
VI SEMESTER
ST-A1-6251(2)
w.e.f:2016–2019("16AD")

STATISTICS
OPTIMIZATION TECHNIQUES
PRACTICAL SYLLABUS - IV A1

TIME:1Hr/Week
Marks: 50

OBJECTIVES:

- To find the linear programming problems by Big M method
- To draw the network representation of CPM
- To find the linear programming problems using dual simplex method.

Course:

1. Formulation of graphical solutions of LPP(using different inequality type constraints).
2. Formulation of LPP by Simplex method.
3. Formulation of a LPP using BIG-M and Two-Phase Simplex method.
4. Formulation of LPP using Dual Simplex method.
5. Programming problems on branch and bound techniques.
6. Network diagrammatic representation on CPM.
7. Network problems on PERT technique.
8. MS-Excel methods for above serial numbers(2,3,4,5,6,7,) (any one of above).

BOOKS FOR STUDY:

1. Operations research – S.D. Sharma,2014
2. Operations research – Taha. H.A.,2014

BOOKS FOR REFERENCE:

1. Operations research –Wagner,2015
2. Operations research – Kanthi swaroop ,2012
3. Operations research – V.K. Kapoor,2014
4. Operations research – Kanthi swaroop and other.,2012
5. Linear Programming - Hadley G,2014

** ** **

OBJECTIVES:

1. To find the expectation of the given values.
2. Binomial Distribution: Finds the probability of k success will occur in n no. Of attempts.
3. Geometric –finds the probability that a success will occur for the first time on the nth try.
4. Normal Distribution : To learn the Characteristics of a typical Normal Curve.

UNIT-I: MATHEMATICAL EXPECTATION: Mathematical expectation (ME) of a random variable and function of a random variable. Moments and covariance using mathematical expectation with examples. Addition and Multiplication theorems on expectation. Definitions of M.G.F, C.G.F, P.G.F, C.F its properties. Chebyshev'S and Cauchy - Schwartz inequalities.

UNIT-II: DISCRETE DISTRIBUTIONS : Binomial and Poisson distributions, their definitions, 1st to 4 central moments, M.G.F, C.F, C.G.F, P.G.F, mean, variance, additive property if exists. Poisson approximation to Binomial distribution.

UNIT-III: Negative Binomial, geometric, hyper geometric distributions - Definitions, means, variances, M.G.F, C.F, C.G.F, P.G.F, reproductive property if exists. Binomial approximation to Hyper Geometric Distribution, Poisson approximation to Negative binomial distribution.

UNIT-IV: CONTINUOUS DISTRIBUTIONS : Rectangular, Exponential, Gamma, Beta Distributions of two kinds. Other properties such as Mean , Variance , M.G.F , C.G.F , C.F , reproductive property.

UNIT-V: Normal Distribution: Definition, Importance, Properties, M.G.F, additive properties, Interrelation between Normal and Binomial, Normal &Poisson distribution. Cauchy Distribution.

TEXT BOOKS:

1. V.K.Kapoor and S.C.Gupta: Fundamentals of Mathematical Statistics, Sultan Chand & Sons, New Delhi.
2. BA/BSc I year statistics - descriptive statistics, probability distribution - Telugu Academy - Dr M.Jaganmohan Rao,Dr N.Srinivasa Rao, Dr P.Tirupathi Rao, Smt.D.Vijayalakshmi
3. K.V.S. Sarma: Statistics Made Simple: Do it yourself on PC. PHI.

REFERENCE BOOKS:

1. Willam Feller : Introduction to Probability theory and its applications. Volume –I, Wiley
2. Goon AM, Gupta MK, Das Gupta B : Fundamentals of Statistics , Vol-I, the World Press Pvt.Ltd., Kolakota.
3. Hoel P.G: Introduction to mathematical statistics, Asia Publishing house.
4. M. JaganMohan Rao and Papa Rao: A Text book of Statistics Paper-I.
5. Sanjay Arora and Bansi Lal: New Mathematical Statistics: Satya Prakashan , New Delhi
6. Hogg Tanis Rao: Probability and Statistical Inference. 7th edition Pearson

OBJECTIVES:

1. To find success or failures of observations by Binomial distribution.
2. To find the Number of Defectives by poisson Distribution.
3. The experiment consists of a sequence of independents trails.

COURSE:

1. Fitting of Binomial Distribution- Direct method.
2. Fitting of Binomial Distribution- Recurrence relation method.
3. Fitting of poisson Distribution –Direct method.
4. Fitting of Poisson Distribution - Recurrence relation method.
5. Fitting of Negative Binomial Distribution.
6. Fitting of Geometric Distribution.
7. Fitting of Exponential distribution.
8. Fitting of normal distribution –Areas method.
9. Fitting of normal distribution- Ordinates method.
10. MS-Excel methods for the above serial numbers 1,2,3,4.

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OBJECTIVES:

1. To estimate the unknown parameter value in the population by knowing observation.
2. To give a statement or assertion about the unknown parameter in the population.
3. To test whether the unknown parameter value is true (or) not by taking large sample size.
4. To test whether the unknown parameter value is true (or) not by taking small sample size.
5. Non-parametric test not estimating the parameters but to test the hypothesis.

COURSE

UNIT – I: Theory of estimation: Estimation of a parameter, criteria of a good estimator – unbiasedness, consistency, efficiency, & sufficiency and. Statement of Neyman's factorization theorem. Estimation of parameters by the methods of moments and maximum likelihood (M.L), properties of MLE's. Binomial, Poisson & Normal Population parameters estimate by ML method. Confidence intervals of the parameters of normal population.

UNIT – II: Concepts of Statistical hypothesis: Null and alternative hypothesis, critical region, two types of errors, level of significance, power of a test. 1 tailed, 2 tailed tests, Neyman - Pearson's lemma. Examples in of Binomial. Poisson, Normal distributions.

UNIT – III: Large Sample Tests: Large sample tests for single mean, two means, Single proportion, Two proportions, Standard Deviation of single and double samples and Fisher's Z transformation.

UNIT – IV: Small sample tests: Tests of significance based on χ^2 , t and F. χ^2 -test for test for independence of attributes, t-test for single, double and paired tests, Variance Ratio Test(F-test).

UNIT – V: Non-parametric tests - Advantages and Disadvantages. Two sample run test, Two sample Median test and Two sample sign test.

TEXT BOOKS:

1. BA/BSc II year statistics - statistical methods and inference - Telugu Academy by A.Mohanrao, N.Srinivasa Rao, Dr R.Sudhakar Reddy, Dr T.C. Ravichandra Kumar.
2. K.V.S. Sarma: Statistics Made Simple: Do it yourself on PC. PHI.

REFERENCE BOOKS:

1. Fundamentals of Mathematics statistics : VK Kapoor and SC Guptha.
2. Outlines of statistics, Vol II : Goon Guptha, M.K.Guptha, Das Guptha B.
3. Introduction to Mathematical Statistics : Hoel P.G

ST.JOSEPH'S COLLEGE FOR WOMEN (AUTONOMOUS),VISAKHAPATANAM

IV SEMESTER

ST 4251 (2)

W.e.f.: 2016-2019("16AD")

STATISTICS

STATISTICAL INFERENCE

PRACTICAL SYLLABUS – II B

TIME: 3 Hrs/Week

Max.Marks:50

OBJECTIVES:

1. To test the sample mean coming from the population mean.
2. To test the sample proportion coming from the population proportion.
3. To test the chi square for goodness of fit.

COURSE:

1. Large sample tests for mean(s).
2. Large sample tests for proportion(s).
3. Large sample tests for standard deviation(s).
4. Large sample tests for Fisher's Z- transformation.
5. Small sample tests for Single and Doublet-test.
6. Small sample tests for Paired t-test.
7. F-Test.
8. Chi square test for goodness of fit.
9. Chi square test for independence of attributes.
10. Non-parametric tests – run test.
11. Non-parametric tests - median test.
12. Non-parametric tests - sign tests.
13. MS-Excel methods for the above Serial Numbers 1,2,3,4.(any one of above)

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OBJECTIVES : To enable the students

- To estimate values of characteristics of the parent population
- To conduct a hypothesis test
- To identify bad sampling methods
- To understand simple random sample
- To obtain the best possible estimates of the population parameter
- Analysis of variants: To test difference between two or more means.
- To develop an experimentation strategy that maximizes learning using a minimum of resources.

COURSE

UNIT- I: Sampling Theory: Principle steps in a sample survey, Censuses versus sample survey, sampling and Non-sampling errors. Types of sampling - subjective, probability and mixed sampling methods.

UNIT-II: Simple Random Sampling: Meaning of Samples and methods to draw, estimation of population mean, variances in SRSWR & SRSWOR.

UNIT- III: Stratified random sampling: Proportional and optimum allocation of sample sizes in stratification. Variances in these methods. Systematic sampling : Systematic sampling when $N = nk$ comparison of their relative efficiencies. Advantages and Disadvantages of above methods of sampling.

UNIT- IV: Analysis of Variance: One way with equal and unequal classifications and two way classifications.

UNIT-V: Design of Experiments: Principles of experimentation in Designs, analysis of completely randomised design (CRD), Randomised block design (RBD) and Latin square design (LSD) including one missing observation . efficiency of these designs and concept of factorial Experiment.

TEXT BOOKS:

- 1.Telugu Academy BA/BSc III year paper - III Statistics - applied statistics - Telugu academy by Prof.K.Srinivasa Rao, Dr D.Giri. Dr A.Anand, Dr V.Papaiah Sastry, 2016
2. K.V.S. Sarma: Statistics Made Simple: Do it yourself on PC. PHI, 2016

REFERENCE BOOKS:

- 1.Fundamentals of applied statistics : VK Kapoor and SC Gupta, 2014
- 2.Indian Official statistics - MR Saluja, 2014
- 3.Anuvarthita Sankyaka Sastram - Telugu Academy, 2016

OBJECTIVES : To enable the students

- To estimate values of characteristics of the parent population
- To conduct a hypothesis test
- To identify bad sampling methods
- To understand simple random sample
- To obtain the best possible estimates of the population parameter
- Analysis of variants: To test difference between two or more means.
- To develop an experimentation strategy that maximizes learning using a minimum of resources.

Conduct any 6 (Ms-excel is compulsory)

1. Estimation of population Mean, variance by SRSWOR.
2. Estimation of population Mean, variance by SRSWR.
3. Comparison of proportional, optimum allocations with SRSWOR.
4. Systematic Sampling.
5. ANOVA-CRD.
6. ANOVA - RBD with one missing observation.
7. ANOVA - LSD with one missing observation.
8. Ms-excel practicals.

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OBJECTIVES :

- Analysis of time series : To predict the future values of the series.
- Index gives a quantitative foundation to qualitative statements like prices are falling or rising.
- To find the number of births, marriages and deaths at takes place within the territory.

COURSE :

UNIT- I: ANALYSIS OF TIMES SERIES: Components of times series: meaning and examples, trend by least squares (straight line and parabola) methods and moving average methods. Seasonal indices by simple averages, ratio to moving average, ratio to trend and link relative methods.

UNIT-II: INDEX NUMBERS: Meaning, problems involved in the construction of index numbers, simple and weighted index numbers. Criteria of good index numbers. Fixed base and chain base index numbers. Cost of living index numbers, wholesale price index numbers, Base shifting, splicing and deflation of index numbers.

UNIT-III: OFFICIAL STATISTICS: Functions and organization of CSO and NSSO. Agricultural, area, yield of statistics, national income and its computation.

UNIT- IV: VITAL STATISTICS: Meaning, Definition, uses, sources of vital statistics, various Death rates-CDR,ASDR,STDR and Birth rates -CBR,ASFR,TFR.

UNIT-V: REPRODUCTION RATES: Measurement of population growth, crude rate of natural increase, Pearle's vital index, Gross Reproduction Rate[GRR], Net Reproduction Rates[NRR], Life tables, construction uses of life tables and abridged life Tables.

TEXT BOOKS:

1. Fundamentals of applied statistics : VK Kapoor and SC Gupta, 2016
2. BA/BSc III year paper - III Statistics - applied statistics - Telugu academy by prof.K.Srinivasa Rao, Dr D.Giri. Dr A.Anand, Dr V.PapaiahSastry,2015

REFERENCE BOOKS:

- 1.Indian Official statistics - MR Saluja, 2014
- 2.AnuvarthitaSankyakaSastram- Telugu Academy,2014

ST.JOSEPH'S COLLEGE FOR WOMEN (AUTONOMOUS), VISAKHAPATNAM
VI SEMESTER
ST-E1-6251(2)
w.e.f:2016–2019("16AD")

STATISTICS
APPLIED STATISTICS
PRACTICAL SYLLABUS - IV

TIME:1Hr/Week
Marks:50

OBJECTIVES:

- To find the number of deaths and births in certain place.
- To find the cost of the living like prices falling or rising.
- To find the seasonal indices by link relatives method.

COURSE :

1. Measurement of Linear Trend
2. Measurement of Seasonal Indices-Link Relatives method
3. Reversal tests.
4. Cost of living Index Numbers.
5. Mortality, Fertility & Re-production rates.
6. Life tables.
7. MS-Excel Practical.

TEXT BOOKS:

1. Fundamentals of applied statistics : VK Kapoor and SC Gupta, 2016
2. BA/BSc III year paper - III Statistics - applied statistics - Telugu academy by prof.K.Srinivasa Rao, Dr D.Giri. Dr A.Anand, Dr V.Papaiah Sastry, 2015

REFERENCE BOOKS:

1. Indian Official statistics - MR Saluja, 2014
2. Anuvarthita Sankhyaka Sastram- Telugu Academy, 2014

** ** **

OBJECTIVES : The objective of this course is to provide an understanding for the graduate business student on statistical concepts to include measurements of location and dispersion, probability, probability distributions, sampling, estimation, hypothesis testing, regression, and correlation analysis, multiple regression and business/economic forecasting.

By completing this course the student will learn to perform the following:

- How to calculate and apply measures of location and measures of dispersion -- grouped and ungrouped data cases
- How to apply discrete and continuous probability distributions to various business problems
- Perform Test of Hypothesis as well as calculate confidence interval for a population parameter for single sample and two sample cases. Understand the concept of p-values.
- Learn non-parametric test such as the Chi-Square test for Independence as well as Goodness of Fit.

In addition to specific learning outcomes, the course aims to shape the attitudes of learners regarding the field of Statistics. Specifically, the course aims to

- Motivate in students an intrinsic interest in statistical thinking.
- Instill the belief that Statistics is important for scientific research.
- Provide a foundation and motivation for exposure to statistical ideas subsequent to the course
- Distinguish between different types of data
- Interpret examples of methods for summarizing data sets, including common graphical tools (such as box plots, histograms and stem plots) and summary statistics (such as mean, median, mode, variance and IQR)
- Assess which methods for summarizing a data set are most appropriate to highlight interesting features of the data
- Identify the features that describe a data distribution.
- Use an appropriate software tool for data summary and exploratory data analysis

Evaluation Process for Theory: 100

For the Field Work : 40 }
For the Project Report : 60 }

Evaluation Process for Practical: 50

For Viva Voce : 20 }
For Seminar Presentation on Project Work : 30 }

Total : 150

Reference Books:

1. Montgomery, D. C. (2009): Introduction to Statistical Quality Control, 6th Edition, Wiley India Pvt. Ltd.
2. Goon A.M., Gupta M.K. and Dasgupta B. (2002): Fundamentals of Statistics, Vol. I & II, 8th Edn. The World Press, Kolkata.
3. Mukhopadhyay, P (2011):Applied Statistics, 2nd edition revised reprint, Books and Allied(P) Ltd.
4. Montgomery, D. C. and Runger, G.C. (2008): Applied Statistics and Probability for Engineers, 3rd Edition reprint, Wiley India Pvt. Ltd.
5. Hoyle, David (1995): ISO Quality Systems Handbook, 2nd Edition, Butterworth Heinemann Publication.
6. Logothetis, N. (1992). Managing Total Quality; Prentice Hall of India.
7. Oakland J.S. (1989). Total Quality Management; Butterworth-Heinemann.
8. Mittag H.J. and Rinne H. (1993) Statistical Methods of Quality Assurance.
9. Montgomery D.C.(1985); Statistical Process Control; John Wiley.
10. Montgomery D.C.(1999) Design and Analysis of Experiments; John Wiley

- OBJECTIVES:** 1. Methods to collect the statistical data for the survey.
 2. Probability : to find the happening or Non-happening of an event.
 Measures of dispersion : about homogeneity or heterogeneity of a distribution.

COURSE

UNIT – I: Introduction to Statistics : Concepts of Primary and Secondary data. Methods of collection and editing of primary data, Secondary data. Designing a questionnaire and a schedule. Measures of central Tendency – Mean, Median, Mode, Geometric Mean and Harmonic Mean.

UNIT – II: Measures of dispersion: Range, Quartile Deviation, Mean Deviation and Standard Deviation. Descriptive Statistics – Central and Non-Central moments and their interrelationship. Sheppard's correction for moments. Skewness and kurtosis.

UNIT – III: Introduction to Probability : Basic concepts of probability, random experiments, trial, outcome, sample space, event , mutually exclusive and exhaustive events, equally likely and favourable outcomes. Mathematical, Statistical, axiomatic definitions of probability. Conditional Probability and independence of events.

UNIT – IV: Probability theorems : Addition and multiplication theorems of probability for 2 and for n events. Boole's inequality and Baye's theorems and problems based on Baye's theorem.

UNIT –V: Random Variable: Definition of random variable, discrete and continuous random variables, functions of random variable. Probability mass function. Probability density function, Distribution function and its properties. Bivariate random variable – meaning, joint, marginal and conditional Distributions, independence of random variables.

Prescribed Text Book:

1. V.K.Kapoor and S.C.Gupta : Fundamentals of Mathematical Statistics, Sultan Chand & Sons, New Delhi.
2. BA/BSc I year statistics – descriptive statistics, probability distribution – Telugu Academy – Dr M.Jaganmohan Rao, Dr. N.Srinivasa Rao, Dr. P.Tirupathi Rao, Smt.D.Vijayalakshmi.
3. K.V.S. Sarma : Statistics Made simple: Do it yourself on PC. PHI

REFERENCE BOOKS:

1. William Feller : Introduction to Probability theory and its applications. Volume–I, Wiley.
2. Goon AM, Gupta MK, Das Gupta B : Fundamentals of Statistics, Vol-I, the World Press Pvt. Ltd., Kolkota.
3. Hotel P.G: Introduction to Mathematical statistics, Asia Publishing house.
4. M.JaganMohan Rao and Papa Rao: A Text book of statistics Paper-I.
5. Sanjay Arora and Bansilal : New Mathematical Statistics: Satya Prakashan, New Delhi.
6. Hogg Tanis Rao: Probability and Statistical Inference. 7th edition. Pearson.

OBJECTIVES:

1. To find out centrally located value for the data.
2. To find the flatness or peakedness of the frequency curve.

COURSE

Conduct any 6 (Ms – Excel is compulsory)

1. Computation of mean, median and mode.
2. Computation of quartile deviation
3. Computation of mean deviation
4. Computation of Standard deviation
5. Non-central moments and central moments, Sheppard corrections & Skewness based on moments and Kurtosis
6. MS-Excel methods for the above serial numbers 1,2,3,4. .

Note : MS-Excel methods to be made mandatory for all the semesters after proper training only to the teaching staff by the University concerned.

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OBJECTIVES:

- To find the relation of numerical data between two or more variables.
- To find the association of Qualitative characteristics.
- To forecast the future values by using curve fitting.

COUSRE

UNIT– I: CORRELATION: Def.,scatter diagram, its coefficient and its properties. , scatter diagram, computation of correlation coefficient for ungrouped data. spearman's rank correlation coefficient, properties of spearrman's correlation coefficients and problems.

UNIT– II: REGRESSION: simple linear regression, properties of regression coefficients. Regression lines, Concept of Correlation ratio, partial and multiple correlation coefficients, correlation verses regression and their problems.

UNIT – III: CURVE FITTING: Method of least square - Fitting of linear, quadratic, Exponential and power curves and their problems.

UNIT–IV: ATTRIBUTES: Introduction, Nature, and consistency and mention its conditions. Independence and association of attributes, co-efficient of association, coefficients of contingency and their problems.

UNIT–V: EXACT SAMPLING DISTRIBUTIONS: Concept of population, Parameter, random sample, statistic, sampling distribution, standard error. Statement and Properties of χ^2 , t, F distributions and their inter relationships.

- TEXT BOOKS:** 1. BA/BSc II year statistics - statistical methods and inference - Telugu Academy by A. Mohanrao, N.Srinivasa Rao, Dr R.Sudhakar Reddy, Dr T.C. Ravichandra Kum.
2. K.V.S. Sarma: Statistics Made Simple: Do it yourself on PC. PHI.
 3. Fundamentals of Mathematics statistics: VK Kapoor and SC Guptha.

REFERENCE BOOKS:

- Outlines of statistics, Vol II: Goon Guptha, M.K.Guptha, Das Guptha B.
- Introduction to Mathematical Statistics : Hoel P.G.

ST.JOSEPH'S COLLEGE FOR WOMEN (AUTONOMOUS),VISAKHAPATANAM
III SEMESTER
ST 3251(2)
W.e.f.: 2016-2019("16AD")

STATISTICS
STATISTICAL METHODS
PRACTICAL SYLLABUS – II A

TIME: 3 Hrs/Week
Max.Marks : 50

OBJECTIVES:

To find the association between the two variables.

To find the qualitative relationship between the variables.

To find out the suitable functional relationship between the random variables from the given data in the form $y=f(x)$

COURSE

Computation of correlation coefficient for grouped data

Computation of correlation coefficient for ungrouped data

Computation of Spearman's rank correlation coefficient

Fitting of straight line.

Fitting of second degree parabola

Fitting of exponential curves.

Fitting of power curve.

Computation of contingency coefficient.

Computation of yule's coefficient of association

MS-Excel methods any for the Serial Numbers 1,2,3,4,5,6.

** ** **

OBJECTIVES:

- To establish theories and algorithms to model and solve the problems.
- To assign a number of jobs to an equal number of machines so has to minimize the total cost
- To find meaning in the provided data and determine what variations are meaningful and which once occur merely by chance.

COURSE:

UNIT- I: Development of OR, Nature & meaning of OR, Characteristics of OR, Scope of Operations Research, Features of OR, Management application of OR Role of OR in decision making, Development of OR in India. Role of computers in OR.

UNIT-II: Transportation Problem - Introduction, Linear programming, Matrix form of transportation problem, Finding an initial basic feasible solution (IBFS) by North West Corner Rule, Lowest cost Entry method, Vogel's approximation method, unbalanced, maximization, optimal solution by using MODI method.

UNIT- III: Assignment Problem – introduction, LP formulation of assignment problem, Hungarian method to solving assignment problem, unbalanced, maximization, restricted assignment problem.

UNIT- IV: Sequencing Problem- Introduction, Principal Assumptions, Processing n Jobs through two machines, processing n jobs through three machines, processing two jobs through m machines.

UNIT-V: Definition of Game, Zero-sum game, Saddle point, Value of Game, Pay-off matrix. Fundamental Theorem of 2X2 games, Dominance property and modified dominance property (simple problems). Solving game by LPP.

LIST OF BOOKS FOR STUDY:

1. Operations research – S.D. Sharma, 2014
2. Operations research – Taha. H.A.,2014

LIST OF BOOKS FOR REFERENCE:

1. Operations research –Wagner, 2015
2. Operations research – Kanthi swaroop ,2012
3. Operations research – V.K. Kapoor, 2014

ST.JOSEPH'S COLLEGE FOR WOMEN (AUTONOMOUS), VISAKHAPATNAM
VI SEMESTER
ST-A2-6251(2)
w.e.f:2016–2019("16AD")

STATISTICS
OPERATIONS RESEARCH
PRACTICAL SYLLABUS – IV A2

TIME:1Hr/Week
Marks:50

OBJECTIVES:

- To find the M x N jobs and scheduling
- To minimize the total transportation cost by balanced transportation problem.
- To minimize the total cost by unbalanced assignment problem.

COURSE :

1. M x N jobs and Scheduling.
 2. Balanced transportation problem.
 3. Unbalanced transportation problem.
 4. Balanced and Unbalanced assignment problem.
 5. Game theory.(Dominance and modified dominance property)
 6. Solving game by LPP.
- MS-Excel methods for the above serial numbers(any one of the above).

LIST OF BOOKS FOR STUDY:

1. Operations research – S.D. Sharma, 2014
2. Operations research – Taha. H.A.,2014

LIST OF BOOKS FOR REFERENCE:

1. Operations research –Wagner, 2015.
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3. Operations research – V.K. Kapoor, 2014.

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