

GUJARAT UNIVERSITY
K. S. SCHOOL OF BUSINESS MANAGEMENT
[Five Years' (Full-time) M.B.A. Integrated Degree Course]
Third Year B.B.A. (SEM – V)
KS_M_CC_355
Quantitative Techniques

3 credit course

Objective:

Competitive scenario of today's world requires practice in decision making with fewer resources. Most of our decisions should depend upon the inspection of only a few items out of the total lot called population. The objective of this course is to understand the process of studying only the sample data and then generalising the result for the population. The course presents the logic of drawing statistically valid conclusions about the population characteristics on the basis of sample drawn from it in a scientific manner.

MODULE: 1

(20%)

➤ **Sampling**

Introduction, difference between population and sample study, use of sample study in practice, different sampling schemes. Examples based on simple random, stratified & systematic sampling only.

➤ **Sampling distributions**

Introduction, types of sampling distribution, Central Limit Theorem, difference between point estimation and interval estimation, meaning of confidence interval, problems on estimating confidence interval from large and small samples, determination of sample size, Related examples.

MODULE: 2 Testing of Hypothesis-I

(20%)

➤ **Large Sample Test**

Meaning, different tests for hypothesis testing for one and two samples like: mean, proportion, difference between means, difference between proportions, difference between standard deviations. Related examples.

➤ **Small Sample Test**

Meaning, different tests for hypothesis testing for one and two samples like: mean, difference between means, difference between means with dependent samples, observed correlation coefficient. Related examples.

➤ **Z-transformation**

Meaning, test for the significance of correlation coefficient, test for the significance of difference between two independent sample correlation coefficients. Related examples.

MODULE: 3 Testing of Hypothesis-II

(20%)

➤ **Chi-square test**

Meaning, different tests, like: independence of attributes, goodness of fit of the distribution and test for population variance. Related examples.

MODULE: 4 Testing of Hypothesis-III

(20%)

➤ **F-test**

Meaning, variance ratio test, analysis of variance (one way and two way ANOVA only). Related examples.

MODULE: 5

(20%)

➤ **Statistical Quality Control**

What is Statistical Quality Control, definition and origin, advantages of SQC, variation in quality, concept of 3-sigma limits, theory of runs, different types of limits, differences between variable and attribute charts. Examples based on different control charts, like: \bar{x} , R, p, $n\bar{p}$ and c chart only.

➤ **Acceptance sampling**

What do you mean by Product Control, different sampling plans, meaning of AQL and LTPD, producer's and consumer's risk, OC curve, AOQ curve, AOQL, ASN curve and ATI curve. Examples related to single sampling plan using Hyper Geometric and Poisson distributions only.

No. of lectures in semester: Approximately 40 to 45 Hrs.

Assignment: Minimum 3 Assignments

Evaluation Pattern:

Continuous Evaluation	30%
Mid-Sem. Exam	20%
End-Sem. Exams	50%

Reference Books:

- Statistics for Management-Levin, Rubin, Rastogi and Siddiqui; Pearson Education
- Applied Business Statistics- Ken Black; Wiley
- Business Statistics- N. D. Vohra; Tata McGraw-Hill
- Comprehensive Statistical Methods- P.N. Arora, Sumeet Arora, S. Arora; S.Chand
- Fundamentals of Statistics- S.C. Gupta; Himalaya Publishing House