

# GUJARAT TECHNOLOGICAL UNIVERSITY

## MASTER OF BUSINESS ADMINISTRATION (GTU'S Global Program)

**Year – I (Semester – I) (W.E.F. JULY 2013)**

**Subject Name: Quantitative Analysis - I (QA - I)**

**Subject Code: 2810007**

### **1. Objectives:**

- To impart the basic art and science of gathering, analyzing and using data to identify and resolve managerial and decision making problems.
- To develop skills in structuring and analyzing business problems using quantitative analysis.
- To develop aptitude and statistical thinking approach to business problems.
- To understand the effective use of computer software for resolution of statistical problems.

**2. Course Duration:** The course duration is of 36 sessions of 75 minutes each, i.e. 45 hours.

<b>Module No:</b>	<b>Module Content</b>	<b>No. of Sessions</b>	<b>70 Marks (External Evaluation)</b>
I	Introduction to Statistics, Statistics in Business, Charts and Graphs. Descriptive Statistics, Measure of central tendency, measure of variability, for Group and ungrouped data, Measures of shape, measures of association. Permutations and Combinations; Introduction to probability, Structure of probability, Results of probability, Revision of probability: BAYES' RULE, and examples Random variable and probability distribution: Discrete and Continuous distribution, Expected value and variance of a distribution.	7	17
II	Discrete Distributions: Uniform distribution, Hyper-Geometric distribution, Binomial distribution, Poisson distribution and their relationship Continuous Distributions: Uniform distribution, Normal distribution, Exponential distribution; Sampling and sampling Distributions	7	18
III	Statistical Inference: Estimation for Single and Two Populations; Hypothesis Testing for Single Populations- Mean, Proportion and Variance; Hypothesis Testing for Two Populations- Mean, Proportion and Variance	7	17

IV	Analysis of Variance ( Only one way), Hypothesis Testing for categorical data(chi square test); Simple Linear Regression Analysis –introduction, Determining the equation of a regression line, measure of variation, using the residual analysis to test the assumptions of Regression, measuring Auto correlation – The Durbin Watson statistic, Testing of the Overall Model	8	18
V	Use of any software (EXCEL, Minitab, SPSS etc.) for exposure to the above concepts. Statistical Modeling using SPSS.	7	Internal Evaluation (20 Marks of CEC)

**4. Teaching Method:** The following pedagogical tools will be used to teach this course:

(1) Lectures and Discussions

(2) Assignments and Presentations

**5. Evaluation:**

A	Projects/Assignments/Quiz/Class Participation, etc.	Weightage (50%) (Internal Assessment)
B	Mid-Semester Examination	Weightage (30%) (Internal Assessment)
C	End-Semester Examination (Min. 30% Theory and Min. 70% Practical)	Weightage (70%) (External Assessment)

**6. Basic Text Books:**

Sr. No.	Author	Name of the Book	Publisher	Year of Publication
T1	Ken Black	Business Statistics for Contemporary Decision Making	Wiley	Student Edition Fourth or later Edition
T2	Richard I. Levin and David S. Rubin	Statistics for Management	Pearson Education	6th Edition or later Edition
T3	Anderson, Sweeney, Williams	Statistics for Business and Economics	Ceenage Learning	Latest edition

**Note:** Wherever the standard books are not available for the topic appropriate print and online resources, journals and books published by different authors may be prescribed.

## 7. Reference Books:

Sr. No.	Author	Name of the Book	Publisher	Year of Publication
R1	D. P. Apte	Statistics for Managers	Excel Books	Latest edition
R2	T N Srivastava and Shailaja Rego	Statistics for Management	TMH	Latest edition
R3	K. B. Akhilesh & S. B. Balasubrahmanyam	Mathematics and Statistics for Management	Vikas Publishing	Latest edition
R4	Naval Bajpai	Business Statistics	Pearson	Latest edition
R5	D. P. Apte	M. S. Excel: Statistical Tools for Managers	Excel Books	Latest edition
R6	Qazi Zameeruds, Vijay K. Khara, S. K. Bhamri	Business Mathematics	Vikas	Latest edition

## 9. Session Plan:

Session Nos.	Topics to be covered
1 - 2	Introduction to Statistics, Statistics in Business, Charts and Graphs
3 - 4	Descriptive Statistics, Measure of central tendency, measure of variability, for Group and ungrouped data, Measures of shape: Skewness and Kurtosis, measures
5 - 6	Permutations and Combinations; Introduction to probability, Structure of probability, Results of probability, Revision of probability, Baye's Rule and
7	Random variable and probability distribution: Discrete and Continuous distribution, Expected value and variance of a distribution
8 - 9	Discrete Distributions: Uniform distribution, Hyper-Geometric distribution, Binomial distribution, Poisson distribution and their relationship
10 - 14	Continuous Distributions: Uniform distribution, Normal distribution, Exponential distribution; Sampling and sampling Distributions
15 - 16	Statistical Inference: Estimation for Single and Two Populations
17 - 18	Hypothesis Testing for Single Populations- Mean, Proportion and Variance
19 - 21	Hypothesis Testing for Two Populations- Mean, Proportion and Variance
22 - 24	Analysis of Variance ( Only one way) and Hypothesis Testing for categorical data(chi square test)

<b>25 - 28</b>	Simple Linear Regression Analysis –introduction, Determining the equation of a regression line, measure of variation, using the residual analysis to test the assumptions of Regression, measuring Auto correlation – The Durbin Watson statistic, Testing of the Overall Model
<b>29 - 36</b>	Use of any software (EXCEL, Minitab, SPSS etc.) for exposure to the above concepts