### Veer Narmad South Gujarat University

#### 406 – Quantitative Techniques for Management

###### Second Year BBA(Semester4) With Effect from AY2020-21

Objective of the course:

To familiarize students with the concepts of statistics and make them aware that how these techniques are applicable and used in the field of business management

Teaching Pedagogy:

Lectures, Class Exercise, Case Study

Unit 1: CorrelationandRegression (25%)

Correlation: Definition, Meaning, Properties, Types, Importance, Correlation Coefficient, Karl Pearson’s Product Moment Method and assumptions, Merits, demerits & its practical problems, Spearman’s Rank Correlation, its uses, interpretation and practical examples, Partial correlation

Regression: Meaning, Importance, Regression Line, Regression Coefficients, Properties and uses, Equation, PracticalProblems

Unit 2: Probability andProbabilityDistributions (35%)

**Probability**

* + Basic Concepts: Random Experiment, Events, Sample Space, Mutually Exclusive Events, Equally Likely Events, Independent Events, DependentEvents
  + Definition of probability of an Event, Statistical or Empirical definition of probability, Axiomatic or Modern approach toprobability
  + Addition and Multiplication Rules of Probability (withoutproof)
  + ConditionalProbability
  + Baye’sRule

MathematicalExpectation

* + Definition of Random Variable
  + Discrete Random Variables and Continuous RandomVariables
  + Expected Value of Discrete Random Variable and itsproperties
  + Variance of Discrete Random Variable and itsproperties

Probability Distributions: Discrete

* + Meaning of ProbabilityDistribution
  + Discrete ProbabilityDistributions
  + Probability MassFunction
  + BinomialDistribution
  + PoissonDistribution

Probability Distribution: Continuous

* + Continuous Probability Distribution, Probability DensityFunction
  + Normal Distribution: Necessary conditions, Normal Distribution Function and its properties

Unit 3: Hypothesis Testing: LargeSampleTests (20%)

* + Basic concepts: Hypothesis, Null Hypothesis, Alternative Hypothesis,Statistic,
  + Parameter, Sampling Distribution, Standard Error, Type I and Type II errors, Levelof
  + Significance, Degree of Freedom, Acceptance Region, CriticalRegion
  + Testing of Hypothesis, TestingProcedure
  + Large Sample Tests: PracticalExamples
  + Estimation of Confidence Interval and Determination of optimum samplesize

Unit 4: Hypothesis Testing: LargeSampleTests (20%)

* + t Test: Test of Mean, Test of difference between two means, Paired ttest
  + F Test: Test of difference between two variances, Application of F test in ANOVA (One way and Twoway)
  + Chi Square (χ2) Tests (Test of Independence & Test of Goodness ofFit)
  + Test for PopulationVariance

Suggested Readings:

1. *Fundamentals of statistics : S.C.Gupta*
2. *Statistics for management : Richard I. Levin and David S.Rubin*
3. *Complete Business Statistics : Amir D. Aczel and JayavelSounderpandian*
4. *Statistics for Management: Anand Sharma 5. Statistics for Business and Economics : R P Hooda*