STT 201: Business Statistics

(BBA, BIM 3rd Semester)

Credit Hours: 3 Hours

***Nature of the course*:**

Theory and Practical with EXCEL (60% + 40%)
The student must succeed in Theory exam and Practical exam separately

Course Objectives:

This course introduces the students to statistical tools and techniques which are applied to in business decision-making. The course will cover the basic tools used to describe data for the purposes of transforming data into information. In addition, the course will present the fundamentals of statistical inference showing how it is possible to examine a small subset of data to reach conclusions about the larger set of data.

The statistical tools should be introduced from an applied perspective using business related examples. Microsoft Excel software will be used throughout the course to aid in statistical analysis.

***Course Content*:**

Unit 1 Describing Data using Graphs and Tables **4 hrs**

Statistics in Business, Frequency distribution, Stem-and-leaf plots, Diagrams and Graphic presentation of Frequency distribution – Histogram, Ogive curve

Unit 2 Describing Data Using Numerical Measures **9 hrs**

Measures of Central Tendency (Mean, Median and Mode), Partition values (quartiles, deciles and percentiles), Measures of variation (Range, Inter Quartile Range, quartile deviations), Variance and standard deviation, Coefficient of Variation, Skewness, Kurtosis, Five number summery, Box-Whisker plot,

Unit 3 Probability **5 hrs**

Sample Space and Events, Probability, laws of probability, conditional probability, Baye's theorem.

Unit 4 Probability Distributions **5 hrs**

Random variable, Mathematical Expectation , Binomial Distribution, Poisson Distribution, Normal Distribution.

Unit 5 Sampling Theory and Sampling Distributions **4 hrs**

Population and Sample, Sampling Methods, Central limit theorem, Sampling Distribution of Mean and Proportion.

Unit 6 Estimation **5 hrs**

Estimation, Properties of Good Estimator: Consistency, unbiasedness, efficiency and sufficiency, Point and interval estimates, Margin of Error and Levels of Confidence, Confidence interval estimates for mean and proportion,

Unit 7 Introduction to Hypothesis Testing **7 hrs**

Concept of Hypothesis Testing, Steps of Hypothesis Testing, Hypothesis Testing for Mean and Proportions for large Sample, Hypothesis Testing Using Critical Value approach, Confidence Limit approach, *p*-value approach.

Unit 8 Simple Linear Correlation **5 hrs**

Scatter plot, Measures to describe correlation, Pearson's product moment correlation coefficient, Correlation Coefficient for Bi-Variate Data, test of significance of Sample Correlation Coefficient using Probable Error, Spearman's rank correlation coefficient

Unit 9 Simple Linear Regression **4 hrs**

Linear models, Assumptions of the linear model, Linear regression model, Obtaining the least-squares linear regression model, interpretation of regression Coefficients,

Reference books:

1. David M. Levine and et al, ***Statistics for managers using MS excel Pearson***
2. Glyn Davis and Branco Pecar, ***Business Statistics using EXCEL***, Oxford University Press