Statistics and Probability

**Course Content**

Descriptive Statistics: Definition of   
data,  
statistic,  
elements and  
variables.

Sources and methods  of data collection.

Representation of  
 Data;   
 Bar graphs,   
 Pie charts,

Frequency distributions,    
 Relative frequency distributions,  
 histograms,   
 Cumulative frequency distribution curves (ogive),  
 Stem and leaf display.

Measures of   
central tendency;  
mode, median,  
mean including geometric  and trimmed mean.

Measures of location;  
quartiles,  
deciles,  
percentiles.

Measures of dispersion;  
Range,  
Inter-quartile range,  
Standard deviation,  
Coefficient of variation  
Skewness and Kurtosis.

Introduction to probability;  
 Experiments,  
 Sample space,   
 Event,   
 Probability of event,  
 Conditional probability,  
 Independence, addition and multiplication rules.   
 Bayes rule.

Probability distributions;   
 Bernoulli,   
 Binomial,  
Poisson,   
Hyper geometric,   
Normal.

Approximation of Binomial using Poisson and normal.   
Expected value and variance.

Linear regression and correlation;   
Scatter plots,   
Pearson's product and   
Spearman's rank correlation coefficient.   
Least square regression line.