**Statistics**

**TS1 (60 Hours)**

**COURSE DESCRIPTION**Descriptive statistics or inferential. This is the set of methods from which it collects, orders, reduces and condenses data. At this end, descriptive statistics uses parameters, or synthesizers, graphs and methods of data analysis called.  
  
**PURPOSE**  
The purpose of the statistics is to identify the meanings of data, digital or otherwise, obtained during the study of a phenomenon.  
We must distinguish the statistical data are the results of observations made during the study of a phenomenon, and the statistical method which aims to rational study data.

**TOPICS COVERED**

1) A STATISTICAL SERIES ONE VARIABLE  
2) STATISTICAL SERIES DUAL (TWO VARIABLES)

3) STATISTICAL INDICATORS

4) TIME SERIES

5) PROBABILITIES ON FINITE SETS

6) DISCRETE RANDOM VARIABLES

7) CONTINUOUS RANDOM VARIABLES

8)STATISTICAL INDICATORS

**CHAPTER ONE  
 A STATISTICAL SERIES ONE VARIABLE  
 (10 periods)**  
  
**Objective:**

* Use the vocabulary of statistics.
* Calculate the characteristics of central tendency and dispersion a statistical series.

**Contents:**

1.1 Vocabulary statistics.

1.2 Table of frequencies.

1.3 Graphical representation of statistical data.

1.4 Characteristics of central tendency: median, mean, mode.

1.5 Dispersal characteristics: range, interquartile range, standard means variance, standard deviation, coefficient of variation, coefficient reduced.

**CHAPTER TWO  
 STATISTICAL SERIES DUAL (TWO VARIABLES)  
 (10 periods)**

**Objectives:**

* Use statistics.
* Calculate the linear correlation coefficient.
* Adjust a statistical series twice a straight regression.

**Contents:**

Statistical Series

2.1 Double.  
2.2 Coefficient of linear correlation.  
2.3 Linear Regression (affine).

2.4 line graphical method, method of least squares prediction.

**CHAPTER THREE** **STATISTICAL INDICATORS**  
 **(5 periods)**

**Objectives**

* Use statistical indices.

**Contents:**

Indices

3.1 Simple (or elementary).

3.2 Indices synthetic surface (or indices compounds).

3.3 Structure indices (price, quantity, value, ....)

3.4 Key indices used.

**CHAPTER FOUR  
 TIME SERIES  
 (10 times)**  
**Objectives:**

* To study the time series.
* Find the general trend "trend".
* To calculate the seasonal coefficients.

**Contents:**  
4.1 Time Series  
4.2 General trend "trend"  
4.3 Seasonality  
4.5 Cyclical movement  
4.6 Accidental Movement

**CHAPTER FIVE**  
 **PROBABILITIES ON FINITE SETS**  
 **(10 periods)**  
 **Objectives:**

* Calculate the total probability and conditional.
* Recognize a complete system of events.

**Contents:**

5.1 Vocabulary events, probability, conditional probability.

5.2 Total probability formula.

5.3 Independent events.  
  
 **CHAPTER SIX**  
 **DISCRETE RANDOM VARIABLES**  
 **(10 periods)**  
**Objectives:**

* Identify a random variable.
* Calculate the probability of a discrete random variable.
* Build the distribution function.
* Calculate: Expected value, variance, standard deviation.

**CHAPTER SEVEN**   
 **CONTINUOUS RANDOM VARIABLES**  
 **(5 periods)**

**Objectives**

* Identify a continuous random variable.
* Identify a probability density.
* Calculate the probability on interval.
* Apply the normal distribution.

**Contents:**

7.1 Definition of a continuous random variable.  
7.2 Distribution function, probability density  
7.3 Probability on an interval  
7.4 Hope, variance, standard deviation  
7.5 Normal Distribution  
7.6 Approximation of a binomial by a Poisson distribution.  
7.7 Approximation of a binomial distribution by a normal distribution.