**I Semester**
**AC I - Statistics for Economics**

**Internal marks: 25** **Subject Code : UEA1**
**External marks: 75** **Exam hours: 3**
**Total marks: 100**

**Objective : To understand the basics of Statistics**

**Unit I: 15 hours**

Statistics- definition, scope , functions and limitations of statistics. Sources of data- Primary and secondary - Methods of collecting primary data. – secondary data-sources of collecting secondary data.

**Unit II: 15 hours**

Classification of data: objectives , types of classification . Formation of frequency distribution (one way classification) - problems only. Tabulation– definition – parts of table – rules for tabulation –kinds of tables. (no problems).

**Unit III: 15 hours**

Diagrams - advantages , general rules for constructing diagrams (one dimensional diagrams only ). line diagram – simple bar diagram – subdivided bar - multiple bar diagram– pie diagram – Simple problems.

**Unit IV: 10 hours**

Graphs – Histogram, frequency polygon, frequency curve and ogives. Difference between diagrams and graphs.

**Unit V: 20 hours**

Measures of central tendency: arithmetic mean, median, mode, harmonic mean and geometric mean– Simple problems only.

**BOOKS FOR STUDY:**

R.S.N.Pillai & V.Bagavathi, Statistics -S.Chand & company LTD.
S.P.Gupta, Statistical methods- Sultan Chand and Sons
Pa.Navaneetham-Businesstools for decision making – Jai publishers ,Trichy.

**II Semester**

**AC II - Statistical Methods**

**Internal marks: 25** **Subject Code : UEA2**

**External marks: 75** **Exam hours: 3**

**Total marks: 100**

**Objectives: To impart the knowledge about Statistical methods**

**Unit I:** **15 hours**

Measures of dispersion - range, Q.D , M.D, S.D and their coefficients - Simple problems only. Skewness - types and Methods - Karl Pearson's and Bowley's coefficient of skewness. Kurtosis - definition - types.

**Unit II :** **15 hours**

Simple correlation – definition – types of correlation – scatter diagram – measurement of correlation – Karl Pearson's coefficient of correlation – Spearman's rank correlation coefficient - Simple problems.

**Unit III :** **15 hours**

Linear regression – regression lines – X on Y and Y on X -Simple problems. properties of regression coefficients (without proof) –Difference between correlation and regression.

**Unit IV:** **15 hours**

Association of attributes (two attributes only) – positive and negative classes- ultimate class frequencies- contingency table- consistency of data-types of association – methods of determining association – comparison of observed and expected frequency method –Yule's coefficient of association method –Simple problems.

**Unit V :** **15 hours**

Probability: random experiments, sample space, types of events – exhaustive events, equally likely events, mutually exclusive events, independent events – mathematical and statistical probability. Addition and multiplication theorems ( two events only ) – Simple problems.

[30% theory and70% problems]

**BOOKS FOR STUDY :**

R.S.N.Pillai & V.Bagavathi, Statistics -S.Chand & company LTD.

S.P.Gupta, Statistical methods- Sultan Chand and Sons

Pa.Navaneetham-Businesstools for decision making – Jai publishers ,Trichy.

**Internal marks: 25** **Subject Code : UEA3**
**External marks: 75** **Exam hours: 3**
**Total marks: 100**

**III Semester**

**Applied Statistics (Allied course III)**

**Objective : To impart the knowledge about the applications of Statistics**

**Unit I :** **15 hours**

Bernoulli distribution, Binomial distribution , Poisson distribution – Simple problems. (no derivations and fitting of distributions) - normal distribution – definition – their properties

**Unit II:1** **15 hours**

Index numbers – definition – uses – construction. Unweighted method – simple aggregative method and simple average of relatives method. Weighted method – Laspeyre's, Paasche's, Marshall Edge worth and Fisher's index numbers. Time reversal and Factor reversal tests – Simple problems.

**Unit III:** **15 hours**

Analysis of time series – definition –uses –components of time series –secular trend – seasonal variations- cyclical variations –irregular variations – measurement of trend – method of moving averages – method of least squares (linear model only ) – Simple problems.

**Unit IV:** **10 hours**

Sampling techniques **–** definition of Census and Sample methods. Random and non Random Sampling. - Probability Sampling - Simple Random Sampling , Stratified Random Sampling and Systematic Random Sampling,

**Unit V:** **20 hours**

Vital statistics – definition and uses – methods of obtaining Vital Statistics – Registration method, Census method, Analytical method. Fertility – definition - Crude birth rate. Specific fertility rate and Total fertility rate - Simple problems. Definition of Gross reproduction rate – Net reproduction rate . Measurement of mortality – Crude death rate, Specific death rate, Standardized death rate– Simple problems.

[30% theory and 70% problems]

**BOOKS FOR STUDY :**

Pa.Navanitham, Business Statistics- Jai Publishers, Trichy
S.P.Gupta, Statistical methods- Sultan Chand and Sons
R.S.N.Pillai & V.Bagavathi, Statistics -S.Chand & company LTD.

**Internal : 25** **Subject Code : UEA4**
**External : 75** **Exam Hours: 3**

**SEMESTER – IV**

**AC IV - MATHEMATICAL ECONOMICS**

**OBJECTIVES:**

1.To create the awareness among the students about the Mathematical concepts and it's Techniques.

2. To include the application of Mathematical Techniques in Economics.

**UNIT – I:- BASIC CONCEPTS**: **12 hrs**

Mathematical Economics – Meaning – Importance – Uses.

**UNIT – II:-SET OPERATIONS** **12 hrs**

Definition of Set, Types of sets, Operation of sets, Union of two or three sets, Intersection of two or three sets, Difference of two sets, Complement of a set – Venn Diagram (Page No.1 to 13 in Text Book) - Simple problems.

**UNIT – III:- MATRIX** **12hrs**

Matrix – Definition , Types, Operations – Addition , Subtraction, Scalar Multiplication , (upto 3x3 order), Multiplication of two matrices (upto 3x3 order)- Define - order of a Matrix, Singular matrix and Non Singular Matrix – Simple problems.

**UNIT – IV:- DETERMINANTS** **12hrs**

Determinants – Definition, Difference between Matrix and Determinants, Define Minors and Co- factors of each element of a determinant (upto 3x3 order). Simple problems ( No properties of Determinants).

**UNIT – V:-SOLVING SIMULTANEOUS EQUATIONS** **12 hrs**

Definition of Cramer's rule – Uses of Cramer's Rule, Solving Simultaneous Equations using Cramer's Rule, (up to Three Variables). – Simple problem

**Text Books:**

1. Mehta-Madnani - Mathematics for Economists, Sultan Chand & Sons.

**REFERENCES:**

1. Salvatore, Dominick - Mathematics for Economists, Schaum Series
2. Allen, R.G.D - MathematicalAnalysis of Economists,Macmillan press and