

<b>ST.JOSEPH'S COLLEGE FOR WOMEN (A), VISAKHAPATNAM</b>		
<b>VIII SEMESTER</b>	<b>STATISTICS</b>	<b>TIME: 4 Hrs/Week</b>
<b>ST 8203(3)</b>	<b>ECONOMETRICS</b>	<b>Max.Marks:100</b>
	<b>SYLLABUS</b>	

**Objectives:**

CO1: To explore the students to the special subject Econometrics which consists of the construction of general linear regression models and non-linear regression models based on the given data for a given economic phenomenon using the well-known statistical tool multiple regression analysis.

CO2: To acquaint the students about multiple regression analysis including the case of simple regression analysis which involves the estimation and validation of general linear model (GLM), then making predictions with successfully validated model.

CO3: To explore the students about the diagnostics and remedies to the problems of multicollinearity, heteroscedasticity and autocorrelation which are resulting when one or some of the assumptions of the model are violated.

CO4: To acquaint the students with some popular Qualitative regression models namely logistic regression models and probit models.

CO5: To explore the students to Autoregressive and Distributed Lag models- Stock adjustment and partial adjustment models.

**Course Outcomes:**

**After learning the course the student will be able**

LO1: To carryout simple linear regression analysis of dependent variable with one independent variable which consists of the estimation of the model, validation of the model and prediction with validated model.

LO2: To carryout regression analysis with regard to some reputed non-linear regression models like semi- log , double log and reciprocal models.

LO3: To carryout multiple linear regression analysis with several independent variables if necessary including dummy variables.

**COURSE:**

**UNIT I**

Basic Econometrics: Nature of econometrics and economic data, concept of econometrics, steps in empirical economic analysis, econometric model, importance of measurement in economics, the structure of econometric data, cross section, pooled cross section, time series and paired data.

## **UNIT II**

Models and Estimations: simple regression models - two variable linear regression model, assumptions and estimation of parameters, Gauss Markoff theorem, OLS estimations, partial and multiple correlation coefficients. The general linear model assumptions, estimation and properties of estimators, BLUEs.

## **UNIT III**

Heteroscedasticity: tests of significance of estimators, R square and ANOVA, concepts and consequences of heteroscedasticity, tests and solutions of heteroscedasticity, specification error, errors of measurement.

## **UNIT IV**

Multicollinearity: concept of multicollinearity and its consequences on econometric models, detection of multicollinearity, measure of multicollinearity – variance Inflation factor (VIF) and tolerance, formula and interpretation, methods of reducing the influence of multicollinearity.

## **UNIT V**

Auto Correlation: disturbance term in economic models and its assumptions, consequences of auto correlated disturbances, detecting the presence of autocorrelations – hypothesis tests for autocorrelation, Durbin – Watson test – Estimation of autocorrelation coefficient (for a first order autoregressive scheme).

### **Books Recommended**

1. Gujarati, D. and Sangeetha, S. (2007): Basic Econometrics, 4th Edition, McGraw Hill Companies.
2. Johnston: Econometrics Methods (2nd Edition):
3. G.S. Maddala: Econometrics

#### 4. A. Koutsoyiannis : Theory of econometrics