SARDAR PATEL UNIVERSITY
Programme & Subject: M.Sc (Statistics)
Semester: IV
Syllabus with Effect from: June-2013

Paper Code: PS03ESTA01	**Total Credit: 4**
Title Of Paper: Econometrics	

Unit	Description in Detail	Weightage (%)
I	Econometrics: Definition, Methodology, Examples, Nature and Source of Data, Classical Linear Regression Model (CLRM): Assumptions, estimation of parameters through Maximum Likelihood Method and Ordinary Least Square Method, Properties of Estimator, Model Selection Criterion; RSquare, Adjusted RSquare, Akaike Information Criterion (AIC), Schwarz Information Criterion (SIC) Mallow's C_p Criterion, Forecast Chi-Square, Significance Test and Confidence Interval, Testing of Subset of Regressors, Point Predictor, Cobb-Douglas Production function, Constraint Least Square, Dummy Variable: Nature, introduction, examples, Chow Test, Seasonal Adjustment.	25%
II	Hetroscedasticity: Reason of Hetroscedasticity; Detection: Informal Method, Formal Test; Park Test, Goldfield-Quant Test, White General Hetroscedasticity Test, The Breusch-Pagan Test; Remedial Measures, OLS Assumptions in presence of Hetroscedasticity; Method of Generalized Least Squares (GLS), Consequences of using OLS in presence of Hetroscedasticity; Autocorrelation: Nature of the Problem, OLS Estimation in the presence of Autocorrelation, Consequences of Autocorrelation, Detection: Graphical Method, The Run Test, Durbin-Watson d Test, A General Test of Autocorrelation, The Breusch-Goldfrey (BG) Test; GLS when correlation coefficient is known as well as unknown; Auto Regressive Conditional Hetroscedasticity (ARCH) and Generalized Autoregressive Conditional Hetroscedasticity (GARH) Model; Analysis of Residuals: Outliers, Leverage, Influence; Chow Prediction Failure Test.	25%
III	Multicolinearity Problem, Its implications and tools for handling the problem; Detection of Multicolinearity; Remedial Measures; Ridge Regression; Use of Principle Component Analysis; Linear Regression with Stochastic Regressors, Types of Specification Errors, Errors of Measurement, Instrumental (Proxy) Variable.	25%
IV	Simultaneous Equation Models: Nature, Examples, Identification Problems: Rules of Identification: The Order Condition of Identifiablity, The Rank Condition of Identifiability. Estimation in Simultaneous Equation Models, Recursive System, Indirect Least Square (ILS) Method, Two Stage Least Square Method (2SLS) .	25%

Basic Text & Reference Books:-

- Doran, H.E.(1989). Applied Regression Analysis in Econometrics, Marcel Dekker Inc.
- Freud, R.J., Wilson,W.J. and Sa,P.(2006). Regression Analysis: Statistical Modeling of a Response Variable, Ed. II Elsevier Inc.
- Gujarathi, D.N. and Sangeetha (2007). Basic Econometrics, Ed. IV , Tata MacGraw Hill.
- Greene, W.G. (2003) Econometric Analysis. Ed. V, Pearson Education.

- Intriligator,M.D., Bodkin, R.G., Hsiao, C.(1996). Econometric Models, Techniques and Applications, Pearson Publisher.
- Johnston, J. (1984) : Econometric methods, Third edition, McGraw Hill.
- Ruppert, D.(2004). Statistics and Finance: An Introduction , Springer (India) Pvt. Ltd.
- Theil, H. (1982) : Introduction to the theory and practice of Econometrics, John Wiley.
- Walters, A (1970) : An introduction to Econometrics, McMillan & Co.
- Wasington, S.P., Karlftis, M.G. and Mannering, F.L. (2011). Statistical and Econometric Methods for Transportation Data Analysis, Ed. II, CRC Press, Chapman & Hall Books.