DEPARTMENT OF HUMANITIES & SOCIAL SCIENCES
Programme: Ph. D
Course Title: Applied Econometrics

Course Category: Pre-PhD Course Work **Internal: 50 Marks**
Course Code: HUT 703 **Theory: 50 Marks**
Credits: 3 (L-3) **Total: 100 Marks**
Semester: Odd/Even **Time: 3 hrs**

Note: Six questions to be set covering all the units. The examinees shall have to attempt any five questions.

Course Objectives

This course provides a comprehensive introduction to basic econometric concepts and techniques. It covers statistical concepts of hypothesis testing, estimation and diagnostic testing of simple and multiple regression models using different sets of data: cross-sectional, time series and panel.

Unit I: Linear Regression

Two variable case estimation of model by method of ordinary least squares, properties of estimators, goodness of fit, tests of hypotheses, confidence intervals.

Unit II: Multiple Linear Regression Model

Estimation of parameters, properties of ordinary least square (OLS) estimators, goodness of fit - $R^2$and adjusted R^2; partial regression coefficients, testing hypotheses: individual and joint. Functional forms of regression models, qualitative (dummy) independent variables.

Unit III: Violations of Classical Assumptions

Consequences, Detection and Remedies, Multicollinearity, Heteroscedasticity and Auto-correlation.

Unit IV: Time SeriesandPanel Data

An introduction to time series models; ARMA/ARIMA models; Unit Root; Cointegration and Granger Causality; ARDL Method; Extension of time series methods to panel models.Panel Data Models, Pooled OLS, Fixed Effect, Random Effects Models, Other contemporary panel data models.

Course Outcomes

The students will be able to understand the econometric models and techniques utilized in previous and current economic research. This course would serve as a foundation for student to understand the new developments in econometric modeling and apply methods in econometrics to the research problems

Suggested Readings

1. Christopher Dougherty. Introduction to Econometrics.
2. Wooldridge Jeffrey. Introductory econometrics: A modern approach. Cengage learning.
3. Enders W. Applied econometric time series. John Wiley & Sons.