Semester V
Introductory Econometrics
ECODSC – 303
Total Credit: 4
Teaching Hours: 45 hours

Course Description:
This course introduces learners of economics with the econometric tools and techniques which are useful in empirical study. The course basically deals with two and multi-variable regression model, the problems associated with ordinary least square method, remedies and dummy variable techniques.

Course Outcome:
After completion of the course, the learners are expected to know how to construct a regression model and are able to apply the OLS method of estimation. Further, the students are expected to detect the basic problems associated with regression model and can address them.

Unit 1: Introduction
Econometrics – Nature, meaning, scope, aims and objectives; Difference between mathematical economics and econometrics and between statistics and econometrics, Steps in empirical research, concept of mathematical and econometric model, basic functional forms of models.

Unit 2: Introduction to Two Variable Linear Regression Model
Two variable linear regression model, population and sample regression functions, OLS estimator, Estimation using ordinary least squares – BLUE property/Gauss- Markov theorem, Testing and inference in two variable OLS, test – ANOVA and F-test, confidence intervals for coefficients, goodness of fit, empirical applications.

Unit 3: Classical Linear Regression Model: Three variables Case
Three variables CLRM – estimation, t-tests for coefficients in three variable models ANOVA and F-tests for overall significance, testing linear restrictions, restricted least squares; Total, partial and multiple correlations, goodness of fit – R^2 and adjusted R^2, Empirical Uses of the multiple linear models.

Unit 4: Problems of Single Equation Estimation
Problem of Multicollinearity – Nature, detection tests, consequences and remedial measures.
Problems of Heteroskedasticity – Nature, detection tests (for small and large sample), consequences and remedial measures.
Problem of Autocorrelation – Nature, detection test – Durbin-Watson Test, consequences and remedial measures – Cochrane-Orcutt method.

Unit 5: Dummy Variable
Nature of dummy variables, dummy independent variable, intercept dummy, slope dummy, dummy variable in regression model, uses of dummy variable and dummy variable trap, concept of dependent dummy variable: linear probability model, Logit model (Only concept).

Essential Readings

1. Guajarati, D. N., Basic Econometrics.
2. Ramanathan, R., Introductory Econometrics with Applications.
3. Maddala, G. S. and K. Lahiri, Introduction to Econometrics.

4. Woolridge, Introductory Econometrics, A Modern Approach

AdditionalReadings

1. Johnston, J., Econometric Methods (3rdEdition)