Course Code	Course Name	Credits
26EC010	ELEMENTARY ECONOMETRICS	04

Course Objectives

The course aims to,

- To enable students to explain and understand the basic concepts of econometrics and its historical origin.
- To develop the ability to formulate econometric models for data analysis and establish cause–effect relationships between economic variables.
- To enable students to apply simple linear regression in their academic work and to analyze different datasets for empirical investigation.
- Apply and solve multiple linear regression problems and use different tools to empirical studies.
- To analyze and critically evaluate problems in OLS estimator

Learning Outcomes

Upon successful completion of this course it is intended that a student will be able to:

- Explain and apply econometric techniques relevant for analyzing economic data.
- Interpret and critically evaluate regression analysis results.
- Demonstrate and apply applied simple linear regression model with appropriate choice of model, estimation techniques, and interpretation of results.
- Explain and analyze the theoretical background of standard multiple regression model.
- To solve different problem arises in OLS estimation

Unit 1 – Introduction to Econometrics (12Hrs)

Origin, Definition, Objectives and Scope of Econometrics, Limitations of Econometrics, Methodology of Econometric Research, Specification and Estimation of an Econometric Model.

Unit 2 –Estimation and Regression Analysis (12Hrs)

Basic Concept of Estimation, Desirable Properties of Estimators, Unbiasedness, Efficiency, Consistency and Sufficiency. Correlation And Regression, Linear Regression Model, Estimation of an Equation.

Unit 3 – Simple Linear Regression Model (12Hrs)

Two Variable Case Estimation of model by OLS method- Assumptions; Properties of Least Square Estimators (BLUE) in SLRM: Gauss-Markov Theorem; Testing of regression coefficient; Test for regression as a whole: Coefficient of determination.

Unit 4 – Multiple Linear Regression Model (12Hrs)

Multiple Regression Analysis- The problem of estimation, notation and assumptions; meaning of partial regression coefficients; the multiple coefficients of determination: R^2 and the multiple coefficients of correlation; R^2 and adjusted R^2 partial correlation coefficients; interpretation of multiple regression equation.

Unit 5 –Problem in OLS Estimation (12Hrs)

Problems of heterosedasticity; Auto correlation (first order); Multicollinearity — their consequences, tests and remedies.

Reference Books:

1. Hill, R.C; Griffiths, W.E, and Lim, G.C. (2017). Principles of Econometrics (5th Edition). John Wiley and Sons, Inc (HGL)
2. Koutsoyiannis. A. (1977), Theory of Econometrics, (2nd Edition), the Macmillan Press Ltd., Hampshire.
3. Verbeek, M. (2017). A Guide to Modern Econometrics. 5th Ed. Wiley.
4. Asteriou, D. and Hall, S. (2016). Applied Econometrics 3rd ed. Palgrave Macmillan.
5. Maddala. G.S and Lahiri K. (2009). Introduction to Econometrics 4th Ed. Wiley

Websites and eLearning Sources:

1. https://www.econometrics-with-r.org/references.html
2. https://www.econometricsbooks.com/
3. https://www.econometrics-with-r.org/
4. https://onlinelibrary.wiley.com/doi/book/10.1002/9780470996249

COs and Bloom's Taxonomy Mapping – 26EC010		
Course Outcomes	**On successful completion of this course, students will be able to**	**BTL**
CO1	Recalling definitions and historical development Understand – explaining concepts, scope, and importance of econometrics	K1, K2
CO2	Describing concept of estimation and construction Linear regression model	K2
CO3	Understand – assumptions of SLRM and Gauss–Markov Theorem , Analyze – properties of estimators (BLUE), hypothesis testing , and interpreting coefficient of determination (R^2) and overall model significance	K2, K4
CO4	Apply the estimation of multiple regression equations and analyze interpretation of partial regression coefficients and correlation. Evaluate – assessing R^2, adjusted R^2, and model performance	K2,K4,K5
CO5	Understand the nature and causes of OLS problems, analyzing and identifying issues using appropriate tests	K2, K4

BTL (Bloom's Taxonomy Level) - K1 – Remembering, K2 – Understanding, K3- Applying, K4 – Analyse, K5- Evaluate and K6 - Create

Relationship Matrix – 26EC010												
Course Outcomes	**Programme Outcomes (POs)**						**Programme Specific Outcomes (PSOs)**					**Mean Score of Cos**
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**	
CO1	3	1	1	1	1	2	2	2	2	3	2	1.81
CO2	3	2	2	1	1	2	3	3	1	2	2	2.00
CO3	3	3	2	2	2	2	3	3	2	3	2	2.45
CO4	3	3	2	3	2	2	3	3	3	2	2	2.54
CO5	2	3	2	3	2	1	3	3	3	3	2	2.45
											Total	2.25

Mean Score: 3- High, 2- Medium/Moderate, 1-Low