

Course Code	Course Title	L	T	P	C
OLMDS605	Econometric Analysis	3	1	0	4
Pre-requisite	OLMDS502	Syllabus version			
		1.0			
Course Objectives					
1. To understand the fundamental concept of econometric analysis and to develop, estimate various econometric models. 2. To compute Qualitative response regression models for solving real time problem of economics and finance. 3. To impart knowledge on panel data analysis and to develop an understanding of dynamic econometric model. 4. To impart knowledge on simultaneous equation model and estimation. 5. To depict the knowledge of Time Series and forecasting econometrics analysis.					
Course Outcomes					
Students will able					
1. To learn, understand, develop and apply various econometric models and related estimation and testing procedure. 2. To solve various types of problems related to economics and finance. 3. To understand and apply the concept of qualitative response regression models and dynamic econometric models. 4. To learn, comprehend and demonstrate the method of simultaneous equation models in real time analysis of econometrics and financial decision making. 5. To forecast the time series econometrics and financial events.					
Module:1 Introduction to Econometric Analysis					
Nature and Scope, Meaning and Limitations. Methodology of econometrics. Types of data: Time series, Cross section and panel data. General Linear Model – Assumptions, least square estimation. Gauss Markov Theorem and its applications, specification of the econometric model, sources of data for econometric analysis. Classical Normal Linear Regression Model (CNLRM) and related estimation and testing. Difference between OLS and GLS.					
Module:2 Econometric Modelling and related Problem					
Model specification and diagnostic testing, model selection criteria, specification errors and consequences, non-normal errors and stochastic regressors. Problem of normality (MVN), multicollinearity, heteroscedasticity, autocorrelation, dummy variables and autocorrelation, econometric modeling, model specification, diagnostic testing, model selection criteria, errors of measurements.					
Module:3 Qualitative Response Regression Models					
The nature of qualitative response model, the linear probability model(LPM) and its application, the LOGIT, the Grouped LOGIT (GLOGIT), the PROBIT and the TOBIT model: estimation and related applications, modeling count data: the Poisson regression model and its applications.					
Module:4 Panel Data and Dynamic Econometric Models					
Panel data: meaning and an illustrated examples, Constant coefficient model (pooled OLS regression), The Fixed effect least squares dummy variable (LSDV)					

model, the random effect model (REM), Fixed effect versus random effect models, application of panel data regression, the role of time or lag in economics, estimation of distributed lag models, estimation of autoregressive models, detecting autocorrelation in autoregressive models: Durbin h test, causality in economics: the Granger Causality Test(GCT).			
Module:5 Simultaneous Equation Model and estimation			
Simultaneous-Equation Models: nature, examples, and bias (inconsistency of OLS estimators), numerical problems, the identification problem, a test of simultaneity and test of exogeneity, estimation of a just identified equation: the method of Indirect Least Squares (ILS), estimation of an over-identified equation: the method of two – stage least squares(2SLS), illustrative examples and applications.			
Module:6 Time Series Econometrics: some basic concepts			
Stochastic process: unit root stochastic process, components of time series, trend stationary (TS) and Difference Stationary (DS) stochastic processes, integrated stochastic process, tests of stationarity, the unit root test, concept of co-integration: regression of a unit root time series on another unit root time series.			
Module:7 Time Series Econometrics: Forecasting			
Approaches to economic forecasting, ARMA, SRMA, ARIMA and SARIMA modelling of time series data, the Box-Jenkins(BJ) methodology, estimation of ARIMA model, diagnostic checking and forecasting, vector auto-regression(VAR), measuring volatility in financial time series: the ARCH, and GARCH models.			
Total Lecture hours			120 hours
Text Book(s)			
1. Greene, William H., Econometric Analysis, Pearson, Eighth Edition, 2018. 2. Gujarati, Damodar, N., Porter Dawn C., and Sangeetha Gunasekar, Basic Econometrics, Mc Graw Hill Education, Fifth Edition, 2017			
Reference Books			
1. Wichmann, Robert and Brooks, Chris, R Guide for Introductory Econometrics for Finance, Fourth Edition, 2019. 2. James, Stock H. and Mark, Watson W., Introduction to Econometrics, Pearson, Third Edition, 2017. 3. Maddala, G.S., and Lahiri Kajal, Introduction to Econometrics, Wiley, Fourth Edition, 2009. 4. Wooldridge, Jeffrey M., Econometric Analysis of cross section and Panel data, MIT Press, Second Edition, 2010. 5. Wooldridge, Jeffrey M., Introductory Econometrics: A Modern Approach, Sixth Edition, 2015. 6. Dougherty, Christopher, Introduction to Econometrics, Oxford University Press, Fifth Edition, 2015. 7. Johnston, J., and Dinardo, J., Econometric Methods, Mc Graw Hill, Fourth Edition. 8. Levendis, John D., Time Series Econometrics, Springer, First Edition, 2018.			
Mode of Evaluation: CAT / Written assignment /Digital Assignment / Quiz / FAT.			
Recommended by Board of Studies		16-10-2023	
Approved by Academic Council		No. 72	Date 13-12-2023