Programme : **MBA (Financial Services)**
Course Code : **FSO320**
Course Title : **Financial Econometrics**
Number of Credits : **4**
Effective from AY : **2020-21**

Need of the Course	Financial econometrics is one the most applied fields in the context of financial modelling. It enables learners understand the underlying relationships between financial variables and use these relationships in forecasting, predictions and policy making process. Financial econometrics has extensive applications in various segments of financial services industry particularly, financial markets, banking, insurance, corporate finance, and mutual funds.
Description of the Course	The course provides extensive coverage of econometric models for cross-section, time series and panel data. For cross section data, models with dummy variables, logit, probit and Tobit models are covered in this course. Further it includes univariate and multivariate time series models for forecasting of series as well as volatility in given time series. Similarly, with respect to panel data econometrics, the course curriculum extends coverage from basic pooled, fixed effects and random effects model to advanced topics in panel unit root, cointegration and dynamic panels.
Objectives of the Course	1. To familiarize learners with advanced regression models for cross-section data. 2. To equip learners with knowledge and skills in application of time series modelling for forecasting. 3. To facilitate learners, develop models for examining short run and long run relationship between multiple time series. 4. To equip learners with skills in developing advanced panel data models for micro and macro level analysis.

Course Content

Unit 1	**: Introduction to Financial Econometrics and Advanced Regression Models**	**12 Hours**
Financial econometrics: Meaning, nature, process and applications of financial econometrics – Regression models with dummy variables - Applications of Dummy Variables in Seasonal Analysis, and Structural breakpoint analysis – Linear probability model - Binary and Multinomial Logit models - Probit Model – Tobit model.		
Unit 2	**: Time Series Econometrics - I**	**12 Hours**
Stochastic process - Stationarity in time series: Concept, Significance, Tests of stationarity in time series, ACF and PACF functions, Unit root tests – Econometric modelling and forecasting using time series data – AR, MA, ARMA and ARIMA modelling – Diagnostics and forecasting using ARIMA – Evaluating		

forecast accuracy – Forecasting using Markov regime switching models.		
Unit 3	**: Time Series Econometrics - II**	**14 Hours**
Modelling short run and long run relationships between time series – Vector Autoregression models (VAR) – Granger causality – Cointegration and error correction models – ARDL model - Volatility models: ARCH/GARCH models – DCC GARCH and GARCH-BEKK models – Kalman filter.		
Unit 4	**: Panel Data Econometrics**	**10 Hours**
Panel data structure – Pooled OLS Regression – Fixed Effects model – Random effects model – Properties of Various Estimators - Fixed Effects versus Random effects model – Wald test - Breuch and Pagan Lagrange Multiplier Test – Hausman Test – Non-Stationary Panel - Panel unit root and cointegration tests – Dynamic panels and instrument variables.		
Pedagogy	: lectures/ case analysis/assignments/class room interaction/lab sessions using software E-views and Gretl applications.	
Reference/Readings	1. Fabozzi, F., Focardi, S., Rachev, S. and Arshanapalli, B. (2014) The Basics of Financial Econometrics: Tools, Concepts and Asset Management, Wiley. 2. Asteriou Dimitrious,(2006), Applied Econometrics, Palgrave Macmillan, New York 3. Greene, W. (2004) Econometric Analysis, Prentice Hall, New York. 4. Gujarati, D. (2004) Basic Econometrics, McGraw Hill, New Delhi. 5. Hayashi, F (2000), Econometrics, Princeton University Press, Princeton. 6. Pattreson, Kerry (2000) An Introduction to Applied Econometric: Time Series Approach, Palgrave Macmillan, New York 7. Ramanathan Ramu (2002), Introductory Econometrics with applications, Thomson South Western, Singapore 8. Wooldridge (2006), Introductory Econometrics, Thomson-South Western, Singapore.	
Course Outcome	: Upon completion of the course learners will be able to: **CO1.** **Apply** probability-based models including LPM, logit, probit and Tobit models to financial data. **CO2.** **Perform** forecasting by developing ARIMA, Markov Regime switching models and VAR Models. **CO3.** **Develop** models for examining long-run relationship between financial variables using Johansen's cointegration and ARDL models. **CO4.** **Forecast** financial market volatility using advanced GARCH volatility models and Kalman filter. **CO5.** **Demonstrate** ability to develop useful panel data models with appropriate diagnostic procedures.	