GUJARAT TECHNOLOGICAL UNIVERSITY
Syllabus for Master of Business Administration, 3rd Semester
Subject Class: Elective
Subject Name: Econometrics
Subject Code: 1539511

1. Learning Outcomes:

Learning Outcome Component	Learning Outcome (Student will be able to)
Business Environment and Domain Knowledge (BEDK)	• *Identify* key classical assumptions in the field of econometrics, explain their significance, and describe the effects of their violations. • *Describe* the theoretical background for the standard methods used in empirical analyses, like properties of least squares estimators and the statistical testing of hypothesis.
Critical thinking, Business Analysis, Problem Solving and Innovative Solutions (CBPI)	• *Discuss* the relationship between econometric estimation and diagnostic testing. • *Perform* tests for stationarity, heteroskedasticiy, multicollinearity and specification errors.
Global Exposure and Cross-Cultural Understanding (GECCU)	• *Assess* the role of domestic and international institutions and norms in shaping economies.
Social Responsiveness and Ethics (SRE)	• *Explain* the contribution of econometrics to the analysis of non-market social issues. • *Compare* and *contrast* efficiency and equity.
Effective Communication (EC)	• *Interpret* and *explain* project reports and articles that make use of the concepts and methods that are introduced in the course.
Leadership and Teamwork (LT)	• *Explain* the nature of dynamic econometric models and times time series econometrics; and calculate economic forecasts.

LO – PO Mapping: Correlation Levels:
1 = Slight (Low); 2 = Moderate (Medium); 3 = Substantial (High), "-"= no correlation

Sub. Code: 4539286	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9
LO1: *Identify* key classical assumptions in the field of econometrics, explain their significance, and describe the effects of their violations.	3	3	--	-	2	-	-	-	3
LO2: *Describe* the theoretical background for the standard methods used in empirical analyses, like properties of least squares estimators and the statistical testing of hypothesis.	3	-	1	1	2	-	-	-	2
LO3: *Discuss* the relationship between econometric estimation and diagnostic testing.	1	1	2	1	-	-	-	-	1
LO4: *Perform* tests for stationarity, heteroskedasticiy, multicollinearity and specification errors.	1	-	3	-	-	-	-	-	1
LO5: *Assess* the role of domestic and international institutions and norms in	1	1	-	1	3	-	-	-	1

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shaping economies.									
LO6: *Explain* the contribution of econometrics to the analysis of non-market social issues.	1	1	-	2	2	1	3	-	-
LO7: *Compare* and *contrast* efficiency and equity.	-	-	3	1	3	-	3	-	-
LO8: *Interpret* and *explain* project reports and articles that make use of the concepts and methods that are introduced in the course.	1	1	1	3	1	1	-	-	1
LO9: *Explain* the nature of dynamic econometric models and times time series econometrics; and calculate economic forecasts.	1	-	-	3	1	1	-	-	2

2. Course Duration: The course duration is of **40 sessions of 60 minutes each.**

3. Course Contents:

Module No:	Contents	No. of Sessions	70 Marks (External Evaluation)
I	Introduction to Econometrics and its application in business and economics, Methodology of Econometrics. Structure of Economic Data – Cross-sectional, Time series and Panel data. Introduction to Time series Econometrics - Stationary and non-stationary data, tests of stationarity, transformation of non-stationary data to stationary data. Data handling using Eviews – Raw data and log values and data differencing.	10	17
II	Classical Linear Regression Model (CLRM) - assumptions and estimations. OLS estimators, testing of hypothesis, R^2 and adjusted R^2 and model selection. Regression versus causation and Regression versus Correlation. Critical evaluation of CLRM – Regression Diagnostic using Multicollinearity, Heteroscedasticity &Autocorrelation	10	18
III	Multiple Regression Analysis –OLS estimators & properties, variances and standard errors and maximum likelihood estimators, hypothesis testing and selection of model. Examples of CLRM and multiple regression using Eviews	10	18
IV	Economic Forecasting – Mean modelling using ARIMA,	10	17

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	Volatility modelling using ARCH / GARCH. Co-integration models- VAR and Causality. Application of models in E-views		
V	**Application:** Assignments and Small projects on studying the relationship between various economic indicators and variables of stock markets, Mean and Variance modelling of selected time series, Co-integration and causality between various selected variables. Econometric modelling of sales and profitability of any selected company.	---	(30 Marks CEC)

4. **Pedagogy:**
   - ICT enabled Classroom teaching Lectures
   - Case Discussions and Role Playing
   - Audio-visual Material (Using CDs/Clippings/ online videos)
   - Assignments and Presentations
   - Experts from industry in can be invited frequently to share practical knowledge.

5. **Evaluation:**
Students shall be evaluated on the following components:

	Internal Evaluation	(Internal Assessment- 50 Marks)
A	• Continuous Evaluation Component	30 marks
	• Class Presence & Participation	10 marks
	• Quiz	10 marks
B	**Mid-Semester examination**	**(Internal Assessment-30 Marks)**
C	**End –Semester Examination**	**(External Assessment-70 Marks)**

6. **Reference Books:**

Sr. No.	Author	Name of the Book	Publisher	Edition
1	Damodar N. Gujarati and Sangeetha	Basic Econometrics	McGraw Hill	2017 / 5th
2	Dimitrios Asteriou, Stephen G. Hall	Applied Econometrics	Palgrave Macmillan	Latest Edition
3	Damodar Gujarati	Econometrics by Example	Palgrave Macmillan	2014 / 2nd
4	G. S. Maddala, Kajal Lahiri	Introduction to Econometrics	Wiley	2012 / 4th
5	Sankar Kumar Bhaumik	Principles of Econometrics: A Modern approach using Eviews	Oxford	2015
6	Jeffrey M. Wooldridge	Introductory Econometrics : A Modern Approach	Cengage Learning	Latest Edition

Note: Wherever the standard books are not available for the topic appropriate print and online resources, journals and books published by different authors may be prescribed.

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7. List of Journals / Magazines / Periodicals / Newspapers / e-resources, etc.

1. Journal of Applied Econometrics
2. Journal of Computational Economics and Econometrics
3. Journal of Econometrics
4. Econometrica
5. Journal of Economics and Finance
6. International Journal of Economics and Finance
7. Indian journal of Finance, Finance India, Economic Times, etc.