(Proposed from AY: 2020-21)

NIRMA UNIVERSITY
Institute of Technology
Bachelor of Technology (ALL)
Semester V/VI

L	T	P	C
2	1	0	3

Course Code	**2HSXXX**
Course Title	**Introduction to Econometrics**

Course Learning Outcomes (CLO):

At the end of the course, students will be able to -

1. interpret the various statistical tools and techniques for econometric model building and testing
2. apply econometric aspects in select cases of economic decision making
3. evaluate empirical research and develop econometric reporting

Syllabus: Teaching hours:

Unit I **3**

Basic Econometric Concepts: Meaning and methodology of econometrics. Understanding mathematical models and econometric models. Revision of statistical concepts – normal distribution – small and large sample tests,F-test

Unit II **3**

Data Sources, Data Base and Data Structure: - cross sectional data time series data, pooled data panel data

Unit III **3**

The Simple Regression Model: Regression Analysis, regression and correlation, two variable regression model, the problem of estimation, Classical Linear Regression Model – CLRM, assumptions underlying Ordinary Least Square (OLS) – standard errors – properties of least squares estimation – The Guass-Markov Theorem .

Unit IV **3**

Multiple Regression Analysis: The multivariate regression analysis, the problem of estimation, interpretation of multiple regression model, OLS estimator, Maximum Likelyhood Estimator, $R^2$and adjusted $R^2$the problem of inference

Unit V 3

Hypothesis Testing: Hypothesis testing and prediction using multiple regression analysis. Functional forms and interpretations.

Unit VI 5

Important Problems in Econometric Model Building and Testing: Violations of classical assumptions. Nature of multicollinearity, estimation in the presence of multicollinearity, consequences of multicollinearity, remedial measures, Rule of Thumb procedures. Nature of hetroscedasticity, estimation in the presence of hetroscedasticity, consequences of hetroscedasticity. Detection – informal and formal methods, remedial measures Nature of autocorrelation, OLS in the presence of autocorrelation, Detecting autocorrelation – Durbin Watson Test and Breusch Godfrey Test (BG)

Unit VII 3

Econometric Reporting: Evaluating the findings of empirical research – sign of coefficient of independent variables, interpretation of p-value and R^2 and F statistic probability value – a measure of goodness of fit of the model.

Unit VIII 7

Applications and Cases: testing of hypothesis, prediction and forecasting, business policy and planning, cases – consumption function, demand function and production function

Tutorials:

This shall consists of at least 8 *tutorials based on the syllabus.
(* Students have to solve the problems using open source software Eviews)

Self Study:

The self -study contents will be declared at the commencement of semester. Around 10% of the questions will be asked from self-study contents.

Suggested Readings^:

1. Gujarati N Damodar & Dawn C Porter, Basic Econometrics, McGraw Hill International
2. Dougherty Christopher , Introduction to Econometrics, Oxford University Press
3. Baltagi H Badai , Econometrics -- Springer International.
4. Rao P and R.L.Miller, Applied Econometrics Prentice Hall of India Ltd., New Delhi
5. Klein L.R., An Introduction to Econometrics, Prentice-Hall of India Ltd..
6. Goldberger A.S., Topics in Regression Analysis, Macmillan, New York
7. Dilip M.Nachane, Econometrics: Theoretical Foundations and Empirical Perspectives Oxford University Press India.
8. Levin L Richard and Rubin S Davide Statistics for Management, Prentice Hall, Pearson
9. Brown William S ,Introducing Econometrics West Group

L =Lecture, T =Tutorial, P= Practical, C=Credit

^ this is not an exhaustive list