Course Code	**EEC 5002**	Semester	**IV**
Course Title	**ADVANCED ECONOMETRICS**		
Credits	**4**	Type	**Elective**

Course Description

The main objectives of the course are to introduce students to the advanced econometrics **techniques** and to prepare them to do their own applied work. Students are encouraged to think of the course as a preparation toward their PG dissertation. The prerequisites of the course are thorough knowledge in statistics and basic econometrics. The knowledge of some computer-programming is welcome.

Course Outcome

Upon completion of this course, the students are expected to:

- Develop the most appropriate methodology for the research studies in social sciences.
- Familiarize and differentiate the use of **various research methods and techniques**.
- Define a research problem and prepare the appropriate research design for the research problem.
- Illustrate the data collection techniques and data analysis and presentation.
- Demonstrate the sampling techniques and its fundamentals.
- Familiarize the task of interpretation and the art of writing research reports.
- Provide advanced training in the **computational skills and economic modelling**

Course Structure

Module 1: Simultaneous Equation Models:

Structural and Reduced form equations - The Simultaneous equation bias – The identification problem – Rules of identification – Test of simultaneity - Estimation of Simultaneous equations – Indirect Least Squares method – 2SLS method.

Module 2: Dummy Variable Regression Models and Qualitative Response Models:

ANOVA models and ANCOVA models – Dummy variable and Chow test – Interaction effects – Piecewise Linear Regression. Nature of Qualitative Response Models – Linear Probability Model – Logit Model – Probit model – Tobit model

Module 3: Dynamic Econometric Models:

Distributed-lag models – Koyck approach to distributive lad models – Rationalization of Koyck model – Estimation of autoregressive model – Durbin h-test.

Module 4: Time-series Analysis:

Stochastic process – Stationary and Non-stationary – Spurious regression - Integrated Stochastic Processes – Test of stationarity - Unit root test –Transforming non-stationary time series – Cointegration analysis.

Module 5: Panel Data Analysis:

Panel data estimation issues – Panel data estimation models: Fixed Effect Model and Random Effect Model – The Hausman Specification Test - Panel cointegration tests

Testing & Evaluation

Continuous evaluation consisting of Quiz, Assignments, Practical Exercises, Midterm exam and final End semester examination.

References

- Jeffrey M. Wooldridge - Econometric Analysis of Cross Section and Panel Data-The MIT Press (2001)
- James Douglas Hamilton - Time Series Analysis-Princeton University Press (1994)
- Damodar Gujarati, - Basic Econometrics-McGraw-Hill Education (2008)
- Damodar Gujarati - Econometrics by Example-Palgrave (2014)
- Badi Baltagi - Econometric Analysis of Panel Data-J. Wiley & Sons (2005)
- Panchanan Das - Econometrics in Theory and Practice: Analysis of Cross Section, Time Series and Panel Data with Stata 15.1-Springer Singapore (2019)
- Vijayamohanan Pillai N. - Panel Data Analysis with Stata Part 1
- Jonathan D. Cryer, Kung-Sik Chan - Time Series Analysis_ With Applications in R-Springer (2008)