VIII SEMESTER   Time: 5Hrs/Week

                                                               Max.Marks:100

ECONOMICS (HONOURS)
ECA-8704-(4)

Skill Enhancing Course - 1
BASIC ECONOMETRICS

OBJECTIVES: students are able to

- Understand the subject matter of Econometrics and its relation with Mathematical Economics and Statistics;
- Gain knowledge on the essential Statistical tools to be applied in Econometrics;
- Explain the two variable linear model, its estimation and properties;

COURSE Outcomes:

After completing the course successfully, the student is expected to perform the following:
- Explain the significance test and goodness of fit in econometric model
- Learn the assumptions, estimation and violation of assumptions of Multiple Linear Regression an their consequences;
- Apply the software packages for solving the econometric models.

Module 1: Econometric Model Properties   **(10 Hours)**

Definition, Scope and Methodology of Econometrics - Mathematical Model vs. Econometric Model – Nature and Sources of Data for Econometric analysis: Time Series & Cross Section, Pooled & Panel Data - Specification of Econometric model.

Module 2: Statistical Concepts for Econometrics   **(14 Hours)**

Statistical Concepts: Normal distribution – Properties of Normal Curve - Estimation of Parameters - Properties of Estimators - Test of Significance - Steps involved in Testing of Hypotheses: Null and Alternative Hypotheses - Type I and Type II Errors - Power of a Test - Tests for Comparing Statistics (Means and Variances) of Two or More Samples – t, F, ChiSquare Distributions and ANOVA.

Module 3: Simple Linear Regression Model and Properties   **(12 Hours)**

Simple Linear Regression Model: Two Variable Case and Assumptions - Estimation of Model by Method of Ordinary Least Squares (OLS) Method - Gauss-Markov Theorem - Properties of OLS estimators (BLUE) - Goodness of fit (r^2) and Adjusted r^2 - One Tail and Two Tail Tests - Confidence Intervals - Drawling Inferences.

Module 4: Multiple Linear Regression Model and Violations of Classical Assumptions (14 Hours)

Multiple Linear Regression Model: Three Variable Case - Estimation of Parameters,

Properties of OLS Estimators, Partial Regression Coefficients - Goodness of Fit (R^2) and Adjusted R^2 - Violations of Classical Assumptions: Consequences, Detection and Remedies – Multicollinearity, Heteroscedasticity and Serial (Auto) correlation.

Module 5: Application of Software Packages   **(10 Hours)**

Use of statistical packages (Excel/SPSS/Stata/ R/ E-Views) in Econometrics – Descriptive Statistics – Graphs and Diagrams - Correlation, Regression Analysis and Tests of Significance.

References:

1. Damodar, N Gujarati, Dawn C Porter and Sangeetha Gunasekar (2017), ***BasicEconometrics,*** Tata McGraw-Hills. New Delhi.

2.   G.M.K. Madnani (2017), *Introduction to Econometrics:*

   Principles andApplications, Oxford & Ibh Publishing, New

   Delhi,
3. Koutsoyiannis, A, (2001), ***Theory of Econometrics,*** Palgrave Macmillan, New Delhi.
4. J. Johnston (1996), ***Econometric Methods, McGraw Hill Education, New Delhi.***
5. Sarma K.V.S. (2010), ***Statistics Made Simple Do it Yourself on PC*** ,

   PHI, NewDelhi.
6. Kennedy P, (2008), ***A Guide to Econometrics***, Wiley and Blackwell**.**
7. Open Source Online Materials & Videos: IGNOU, e-PG Pathasala, SWAYM, KhanAcademy etc.

Suggested Student Activities:

1. Exercises of Concepts of Econometrics

2. Assignments on the use of Regression models for economic problems

3. Student seminars on Econometrics models and their use

4. Task Based Learning (TBL) for solving and application of the econometric model ineconomics

5. Exercises in use of software applications in econometric models