**Training Programme on**

**Research Methodology and Application of Econometrics in Research**

**(23rd August – 3rd September, 2021)**

**Day 1 (Monday, 23rd August, 2021)**

*Session 1 (10am – 11.15am) & Session 2 (11.30 am – 12.45pm)*

* Introduction to Research Methodology, Research Problem and Research Design

*Session 3 (2pm – 3.15pm) & Session 4 (3.30pm – 4.45pm)*

* Research Methods, Types of Research Methods: Quantitative and Qualitative techniques.

**Day 2 (Tuesday, 24th August)**

*Session 1 (10am – 11.15am) & Session 2 (11.30 am – 12.45pm)*

* Research Techniques and Tools: Questionnaire, Interview, Observation, Schedule, Check-list, data collection, data cleaning, data coding, data editing,

*Session 3 (2pm – 3.15pm) & Session 4 (3.30pm – 4.45pm)*

* Disciplinary and Interdisciplinary Approaches of research methodology, major secondary data sources (macro level, household level and enterprise level), and ethical issues in research.

**Day 3 (Wednesday, 25th August)**

*Session 1 (10am – 11.15am) & Session 2 (11.30 am – 12.45pm)*

* Sampling: Concepts of Statistical Population, Sample, Sampling Frame, Sampling Error, Sample Size, Characteristics of a good sample, testing of hypothesis

*Session 3 (2pm – 3.15pm) & Session 4 (3.30pm – 4.45pm)*

* Probability Sample – Simple Random Sample, Systematic Sample, Stratified Random Sample & Multi-stage sampling, determining size of the sample – Practical considerations in sampling and sample size.

**Day 4 (Thursday, 26th August)**

*Session 1 (10am – 11.15am) & Session 2 (11.30 am – 12.45pm)*

* Simple Linear Regression Model: Assumptions, two variable and multiple variables regression models and Estimation of Parameters, application of OLS using *Gretl package*

*Session 3 (2pm – 3.15pm) & Session 4 (3.30pm – 4.45pm)*

* Relaxing assumptions of Classical models
* Problem solving of assumptions using the macro level data

**Day 5 (Friday, 27th August)**

*Session 1 (10am – 11.15am) & Session 2 (11.30 am – 12.45pm)*

* Application of research methods in conducting research studies, various techniques used in quantitative evaluation of impact assessment – presentation of impact assessment studies conducted by NILERD.

**Holidays (Saturday and Sunday)**

**Day 6 (Monday, 30th August)**

*Session 1 (10am – 11.15am) & Session 2 (11.30 am – 12.45pm)*

* Dummy variables - Nature of Dummy variables, Dummy variable regression models and its uses and applications

**Day 7 (Tuesday, 31st August)**

*Session 1 (10am – 11.15am) & Session 2 (11.30 am – 12.45pm)*

* ARIMA: Box-Jenkins Approach, model selection criterion and diagnostic checking, forecasting
* Applications of ARIMA model using the macro level data

**Day 8 (Wednesday, 1st September)**

*Session 1 (10am – 11.15am) & Session 2 (11.30 am – 12.45pm)*

* Unit root problem, Unit root tests and the choice of the number of lags and unit root tests.
* Applications of Unit root test techniques using the macro level data

**Day 9 (Thursday, 2nd September)**

*Session 1 (10am – 11.15am) & Session 2 (11.30 am – 12.45pm)*

* Co-integration regression, Testing of co-integration, error correction model, Impulse Response Function, Variance Decomposition.
* Applications of Cointegration test techniques using the macro level data

**Day 10 (Friday, 3rd September)**

*Session 1 (10am – 11.15am) & Session 2 (11.30 am – 12.45pm)*

* Hands on exercises on various statistical techniques and their application using statistical packages such as SPSS, STATA and EVIEWs.

*Session 3 (2pm – 3.15pm) & Session 4 (3.30pm – 4.45pm)*

* Discussion on feedback received from the participants on the programme and the way forward and concluding remarks.

**Course Director: Dr. P. C. Parida**