Electrochemical Testing and consolation Charges-2026

(@All prices Excluding 18% GST)

Sl. No	Technique	Rs	Description/ Specifications
1	Linear Sweep Voltametry (LSV)	₹2999	per electrode
2	Cyclic Voltammetry (CV)	₹2999	per electrode
3	Electrochemical Impedance Spectroscopy (EIS)	₹2999	per electrode
4	Chronopotentiometry (CP) OR Galvonostatic Charge-Discharge (GCD)	₹2999	per electrode
6	Differential Pulse Voltammetry (DPV)	₹2999	per electrode
7	Galvonostatic Intermittent Titration Technique (GITT)	₹2999	per electrode
8	HER Studies (LSV, CV, EIS)	₹7999	per sample
9	OER Studies (LSV, CV, EIS)	₹7999	Per sample
10	Stability Studies	₹2999	Up to 12h after that Extra ₹299/h
11	Electrode Preparation/Utilization, (Ni foam, Torey carbon, Pt/C, Reference Electrode, Electrolyte-KOH, H_2SO_4, Nafion, Binder, etc)	₹1999	per electrode, per sample
12	Supercapacitor (CV, GCD, EIS)-3 electrode (Half Cell)	₹9999	per electrode
13	Supercapacitor (CV, GCD, EIS)-2 electrode (Full cell)	₹7999	per Cell
14	Coin Cell Fabrication	₹699	per Cell
15	Supercapacitor (CV, GCD, EIS)-Coin Cell	₹5999	per Cell
Electrochemical Sensor **(Biomolecules-Glucose, Uric Acid, Ascorbic Acid, Creatinine)**			
16	Cyclic Voltammetry (CV)	₹2999	per electrode
17	Electrochemical Impedance Spectroscopy (EIS)	₹2999	per electrode
18	Differential Pulse Voltammetry (DPV)	₹2999	per electrode
19	Interference, stability, repeatability	₹4999	per electrode

Electrochemical Results Analysis & Reporting Charges

Sl. No	Technique	Rs	

1	HER Studies (LSV, CV, EIS, Tafel, stability)	₹14999	**

Analysis & Reporting Includes: **

LSV Data Processing & Interpretation

- Plotting raw and corrected LSV curves with proper baseline adjustment
- Determining onset potential and overpotential at benchmark current densities (e.g., η_{10})
- Identifying activation-controlled and diffusion-controlled regions

CV Data Analysis

- Plotting CV curves with scan-rate corrections for reliable comparison
- Identifying redox features and catalytically active sites
- Extracting double-layer capacitance (C_{dl}) and estimating ECSA for intrinsic activity comparison

EIS Data Modelling

- Generating clear Nyquist and Bode plots
- Fitting data using appropriate equivalent circuit models
- Extracting R_s, R_{ct}, C_{dl}, and diffusion parameters to understand charge-transfer kinetics
- Interpreting interfacial behaviour and catalyst–electrolyte interactions

Tafel Plotting & Mechanistic Insights

- Plotting η vs log j with proper linear fitting
- Calculating Tafel slope and exchange current density (j_0)
- Identifying the dominant HER reaction pathway (Volmer, Heyrovsky, or Tafel mechanism)

Stability Study Evaluation

- Plotting CA/CP curves and analysing performance retention over time
- Comparing pre- and post-stability LSV to assess durability
- Identifying degradation trends and possible structural/chemical changes

Comprehensive Reporting

- Providing refined, publication-ready plots (LSV, CV, EIS, Tafel, CA/CP)
- Presenting extracted parameters in structured tables
- Offering clear interpretation of catalytic behaviour and performance trends
- Delivering a concise conclusion summarising key outcomes

Importance of These Analyses for HER Research & Manuscripts

- These analyses collectively establish **activity, kinetics, mechanism, and stability**, which are the four mandatory pillars of any high-quality HER study.
- Together, they provide all core electrochemical evidence required for writing a **complete, publication-ready manuscript**, enabling comparison with state-of-the-art catalysts and satisfying reviewer expectations for depth, reproducibility, and scientific rigour.

2	OER Studies (LSV, CV, EIS, Tafel, stability)	₹14999	**

**Analysis & Reporting Includes: **

LSV Data Processing & Interpretation
- Plotting raw and corrected LSV curves with baseline adjustment
- Determining onset potential and overpotential at standard current densities (e.g., η_{10} / η_{20} / η_{50})
- Identifying kinetic vs. diffusion-limited regions
- Smoothing and noise reduction for high-quality comparative plots

CV Data Analysis
- Plotting CV curves at multiple scan rates for reliable electrochemical profiling
- Identifying redox transitions associated with OER-active species (e.g., Ni^{2+}/Ni^{3+}, Co^{2+}/Co^{3+})
- Calculating double-layer capacitance (C_{dl}) and estimating ECSA for normalization of intrinsic activity

EIS Data Modelling
- Plotting Nyquist and Bode plots with statistical fitting
- Using equivalent circuit models to extract R_s, R_{ct}, C_{dl}, Warburg elements, etc.
- Evaluating charge-transfer kinetics and electrode–electrolyte interfacial behavior
- Clear interpretation of kinetic and diffusion contributions to OER performance

Tafel Plotting & Mechanistic Insights
- Generating accurate Tafel plots (η vs log j) with linear fitting
- Extracting Tafel slopes and exchange current density (j_0)
- Identifying dominant OER pathway (Adsorption/Deprotonation, M-O intermediate formation, etc.)
- Benchmarking catalyst efficiency against literature values

Stability Study Evaluation
- Plotting CA/CP curves for long-term durability evaluation
- Analysing current retention, potential drift, and stability failure modes
- Comparing before/after LSV curves to assess surface activation or degradation
- Interpretation of catalyst robustness for real-world operation

Comprehensive Reporting
- Providing high-quality, publication-ready plots for all techniques
- Presenting extracted parameters (η, Tafel slope, R_{ct}, C_{dl}, etc.) in structured tables
- Delivering in-depth interpretation of catalyst activity, kinetics, mechanism, and durability
- Summarising key findings in a concise, manuscript-friendly format

	Importance of These Analyses for OER Research & Manuscripts		
	- These characterisations together establish the four essential pillars of OER evaluation: **Activity, kinetics, mechanism, and stability.** - They provide the complete electrochemical evidence required for drafting a **scientifically strong, publication-ready OER manuscript**. - Reviewers expect LSV, CV, EIS, Tafel, and stability analyses for validating OER performance, benchmarking with existing catalysts, and demonstrating reliability and reproducibility.		
3	Supercapacitor (CV, GCD, EIS, Stability)-3 electrode (Half Cell)	₹14999	**
	Analysis & Reporting Includes:**		

Analysis & Reporting Includes:**

CV (Cyclic Voltammetry) Analysis
- Plotting CV curves at multiple scan rates for electrochemical profiling
- Calculating specific capacitance (F/g, F/cm^2, or F/cm^3) from CV curves
- Identifying redox peaks (if pseudocapacitive) and differentiating EDLC vs. pseudocapacitive behaviour
- Assessing rate capability through shape retention at higher scan rates

GCD (Galvanostatic Charge–Discharge) Analysis
- Plotting GCD curves at various current densities
- Extracting specific capacitance, energy density, and power density
- Determining IR-drop and interpreting internal resistance contribution
- Evaluating charge–discharge symmetry to understand reversibility

EIS (Electrochemical Impedance Spectroscopy) Modelling
- Plotting Nyquist and Bode plots with accurate fitting
- Extracting R_s (solution resistance), R_{ct} (charge-transfer resistance), and Warburg elements
- Interpreting ion diffusion, interface behaviour, and electrode kinetics
- Modelling capacitance response using appropriate equivalent circuits

Stability / Cycling Performance
- Plotting capacitance retention over extended cycles (CV/GCD)
- Evaluating coulombic efficiency and charge–discharge stability
- Comparing pre- and post-cycling performance to assess material durability
- Identifying degradation mechanisms through curve distortion and IR-drop changes

Comprehensive Reporting
- Providing clean, publication-ready plots for CV, GCD, EIS, and cycling data
- Presenting extracted parameters (specific capacitance, R_s/R_{ct}, retention %, IR-drop, etc.) in structured tables

- Delivering clear interpretation of capacitive behaviour, kinetics, and long-term performance
- Summarising results in a concise, manuscript-friendly technical report

Importance of These Analyses for Supercapacitor Research & Manuscripts

- Together, CV, GCD, EIS, and cycling stability provide the **complete electrochemical fingerprint** of a supercapacitor material.
- These analyses validate **charge storage mechanism, performance, efficiency, kinetics, and durability**, all of which are essential for a **high-quality, publication-ready manuscript**.
- Reviewers expect these four core techniques for benchmarking new electrode materials against state-of-the-art supercapacitors.

4	Supercapacitor (CV, GCD, EIS, Stability)-2 electrode (Full cell)	₹9999	**

Analysis & Reporting Includes:**

CV (Cyclic Voltammetry) Analysis

- Plotting CV curves at multiple scan rates for full-cell performance evaluation
- Calculating specific capacitance (F/g, F/cm^2, or F/cm^3) from CV curves
- Assessing device behaviour (EDLC vs. pseudocapacitive characteristics)
- Evaluating rate capability through CV shape retention at higher scan rates
- Determining voltage window suitability and operational stability

GCD (Galvanostatic Charge–Discharge) Analysis

- Plotting charge–discharge curves at several current densities
- Extracting:
  - Specific capacitance of the full cell
  - Energy density (Wh/kg or Wh/L)
  - Power density (W/kg or W/L)
- Measuring IR-drop to interpret internal resistance and electrode balancing
- Identifying charge–discharge symmetry for reversibility assessment

EIS (Electrochemical Impedance Spectroscopy) Modelling

- Plotting Nyquist and Bode plots with high-quality curve fitting
- Extracting R_s (solution resistance), R_{ct} (charge-transfer resistance), and diffusion-related components
- Analysing ion transport efficiency and electrode–electrolyte interactions
- Determining device-level impedance and performance-limiting parameters
- Equivalent circuit modelling for full-cell devices

Stability / Cycling Performance

- Plotting long-term cycling data (CV/GCD) for capacitance retention
- Evaluating coulombic efficiency, charge–discharge durability, and performance degradation

- Comparing pre- and post-cycling CV/GCD curves to identify changes in behaviour
- Analysing loss mechanisms such as electrode degradation, electrolyte breakdown, and resistance increase

Comprehensive Reporting

- Providing clean, publication-ready graphs for CV, GCD, EIS, and cycling stability
- Presenting key parameters in tables:
  - Specific capacitance
  - Energy & power density
  - R_s/R_{ct} values
  - Retention %, coulombic efficiency
  - IR-drop trend analysis
- Delivering a concise, interpretation-rich report suitable for journal manuscripts, theses, or client presentations
- Highlighting comparative performance with literature benchmarks

Instructions

1. The prices listed are **indicative** and provided **for reference only**.
2. **Final charges** will be communicated after further **email or phone discussion**, based on a clear understanding of the **actual testing and consultancy requirements**.
3. Prices are **subject to change** depending on **sample nature, testing complexity, and scope of work**.
4. **Testing duration and slot allocation** depend on **facility and instrument availability**.
5. The testing timeline may vary from **1 to 3 weeks after receipt of payment**.
6. All the above prices are exclusive of GST. **An additional 18% GST will be applicable** and added to the final invoice as per Government of India regulations.

For ESSNANO MATERIALS LAB Pvt. Ltd.

Director