



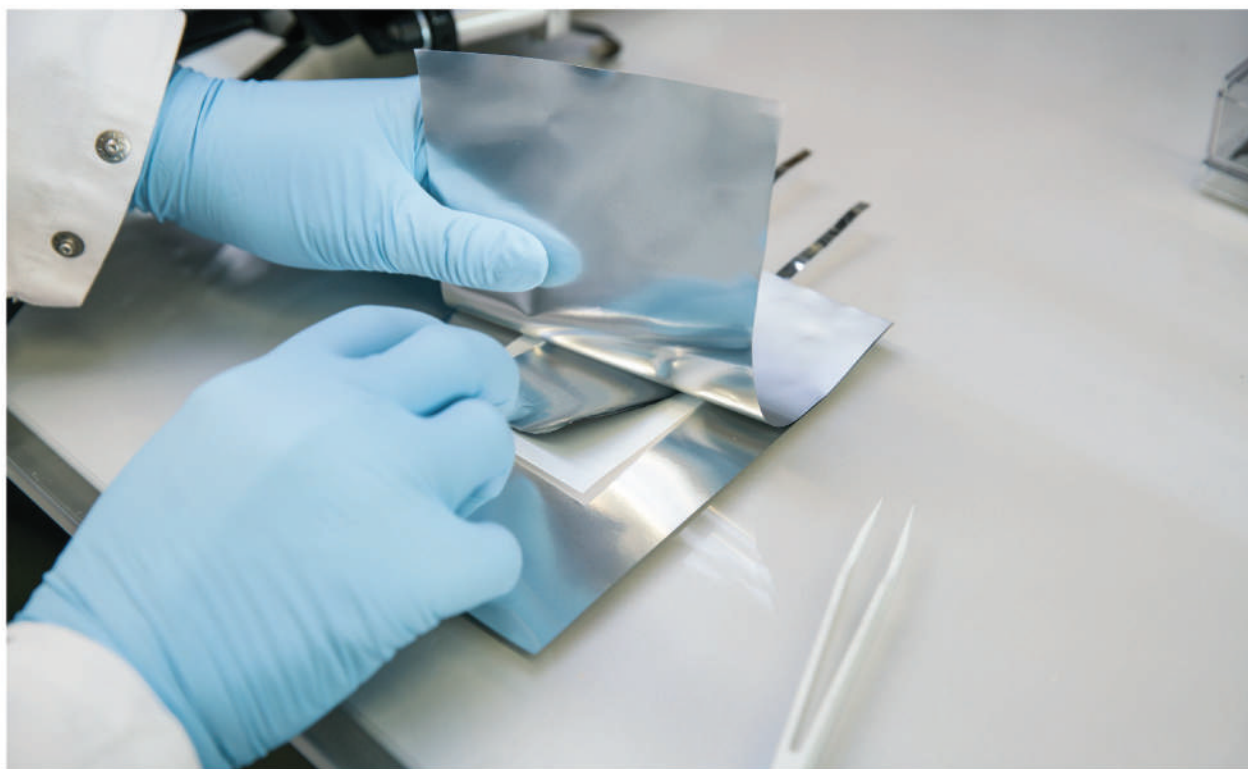
IN ASSOCIATION WITH



PRESENTS

A stylized graphic of a battery with a yellow lightning bolt inside a blue square, set against a green background with horizontal lines.

HANDS ON LI-ION CELL FABRICATION WORKSHOP



COIN CELL



ELECTRODE COATING



IN-HOUSE TESTING

VENUE: **PUNE**

Why you should attend Hand's on training on Li-Ion Cell Manufacturing?

India has recently gained stature as one of the fastest growing markets for advanced energy storage technology supporting the exponential growth expected in its Electric Vehicle market over the next 5 years. The 20+ companies involved in cell to module assembly in India, currently importing Li-ion batteries from Japan, USA & China realise the significant opportunity presented to build a strong domestic manufacturing eco system. These opportunities are in stationery energy storage as well as in assisting integration of renewable energy sources.

With IESA estimating the India market to grow over 300GWh (2019-25) considering ESS & EV opportunities, around \$5 billion investments is expected to be attracted supporting 50+GWh capacities for multiple li-ion battery GIGA factories.

The Indian government is strongly backing this market via the recently launched National Mission for Transformative Mobility with Phased Manufacturing Program for li-ion battery manufacturing by NITI Aayog. Similarly, Ministry of Heavy Industries have launched FAME-2 (Faster Adoption & Manufacturing of Electric vehicles) incentives with an Rs.10, 000Cr budget. Importantly even most state governments of India are focused on manufacturing of advanced energy storage technologies.

This unique programme designed by IESA & our experts will assist the industry in understanding and learning the Li-ion cell manufacturing process via hands on lab training. Our programme will help participants understand the requirements of raw material, equipment & detailed manufacturing processes.

Key Learnings for Participants:

- ◆ Hands-on training session for pouch cell fabrication
- ◆ Preparation of cathode ink and coating on current collectors for electrode fabrication
- ◆ Hands on training session on battery testing and criteria for cell selection
- ◆ Presentation on cell manufacturing, chemistries and performance characteristics
- ◆ Presentations on next generation Li-ion technologies

Who Should Attend?

Anyone who is interested in learning about the actual process of electrode preparation and battery fabrication is invited to attend this workshop. The lab sessions and classroom sessions are specially designed for getting you up to date with the fundamentals of cell manufacturing. Focused lectures by our team of experts will guide you to having a solid foundation of the past, present and future possibilities in Li-ion batteries.



Energy storage application developers: EVs, stationary storage devices



Battery raw material and component manufacturers



Chemical Manufacturing Industry



Academic Researchers



Interested people from the Startup ecosystem



Battery pack assemblers and energy storage suppliers



Automotive Industry



Electronics and Electrical Component Manufacturers

Programme Details

Day 1

Session 1

- ⚡ Classroom training about lithium-ion chemistries and cell fabrication
- ⚡ Safety tutorial on materials handling
- ⚡ Practical training: cell fabrication (pouch cell/coin cell) involves electrode cutting, welding of Ni and Al tabs, separator cutting, electrode assembly

Session 2

- ⚡ Lab visit
- ⚡ Complete assemble of pouch cell
- ⚡ Battery testing facilities

Day 2

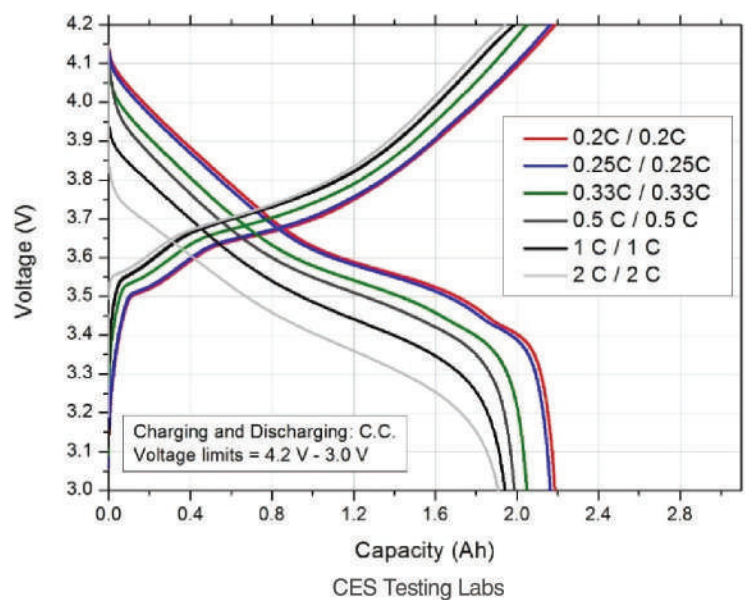
Session 1

- ⚡ Tutorial on safe cell operation
- ⚡ Start cell testing
- ⚡ Classroom and practical training on battery testing
- ⚡ Measuring battery performance (energy density, power density, energy efficiency for different c-rate.)

Session 2

- ⚡ Discuss cell testing results (details)
- ⚡ Understanding thermal management of battery pack

Battery testing can lead to valuable insights on the performance of the cells. All relevant parameters such as energy density, cycle life, efficiency, fast charging capability, effect of temperature, etc can be accurately measured.



C -RATE	ENERGY DENSITY (WH/KG)	ENERGY DENSITY (WH/L)	POWER DENSITY (W/KG)	POWER DENSITY (W/L)
C/5	182	483	37	97
C/4	179	477	46	121
C/3	168	447	61	161
C/2	162	430	90	238
1C	155	413	176	468
1.5C	149	396	343	913

About US:

IESA:

The India Energy Storage Alliance (IESA) was launched in 2012 to assess the market potential of Energy Storage Technologies in India, through an active dialogue and subsequent analysis among the various stakeholders to make the Indian industry and power sector aware of the tremendous need for Energy Storage in the very near future. IESA aims to make India a global hub for research and manufacturing of advanced energy storage technologies by 2020. In the past 6 years IESA membership has grown from 5 to 80+ and covers verticals from energy storage manufacturers, research institutes & universities, renewable energy and Power electronics companies

Customized Energy Solutions:

Established in 1998, Customized Energy Solutions (CES) is an energy advisory and service company that works closely with Clients to navigate the wholesale and retail electricity markets across the United States and globally, including India, Japan, Canada and Mexico. It offers software solutions, back office operational support, and advisory and consulting services focused on asset optimization and energy market participation efficiency. CES is also a third-party asset manager of approximately 10,000MWs of renewable and conventional generation resources across all ISOs in the United States and Ontario, Canada. It empowers clients to achieve their goals by helping them navigate the evolving energy markets, complex market rules, and new energy technologies entering the markets

C-MET:

Dedicated to the furtherance of competent research and development in the firmament of Electronic Materials, the Centre for Materials for Electronics Technology (C-MET) functions as an autonomous scientific society under Ministry of Electronics & Information Technology (MeitY), Govt. of India. Besides augmenting core competence, C-MET envisions attainment of self-sufficiency in the sphere of Electronic materials, components and devices to cater to India's strategic and industrial applications, exploiting indigenous resources of raw materials.

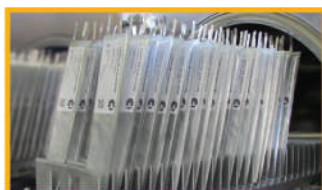


Packaging of separator electrode assembly into pouch cell laminate

MTI Instruments

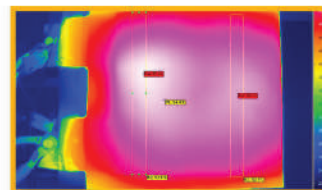


COIN CELL



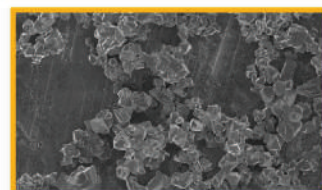
Entry of sealed pouch cells into an atmosphere controlled glovebox for electrolyte filling

Custom Cells



Heat distribution measured via Infrared thermal Imaging for a pouch cell under discharge

Fraunhofer ISIT



Scanning Electron Microscopy (SEM) image of LFP cathode nanoparticles



Long term cycle life testing on cylindrical cells

CES Testing Lab

TO REGISTER CONTACT

👤 Ashok Thakur 📞 +91 9819944543 ✉️ athakur@ces-ltd.com
📍 Customized Energy Solutions India Pvt Ltd, A 501, 5th Floor I G.O. Square, Aundh — Hinjewadi Link Road, Wakad

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