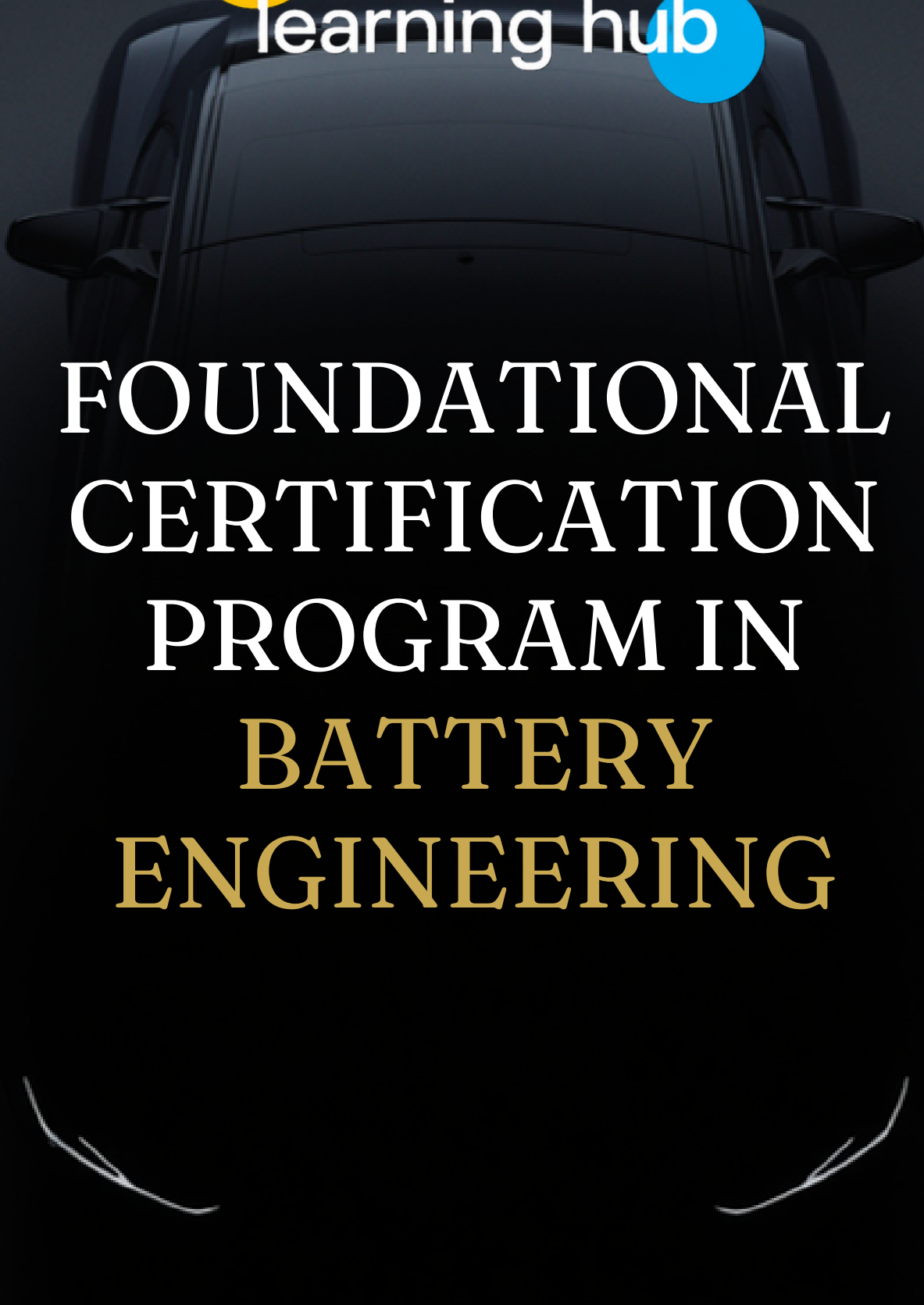




Battery
learning hub

FOUNDATIONAL
CERTIFICATION
PROGRAM IN
BATTERY
ENGINEERING

ABOUT BATTERY LEARNING HUB

WHO WE ARE

Battery Learning Hub Pvt. Ltd. is an engineering education and research company specializing in Battery Technology, Battery Management Systems (BMS), Electric Vehicles (EV), and Battery Energy Storage Systems (BESS). We develop structured certification programs that bridge the gap between academic learning and industry requirements through application-oriented technical education.

OUR VISION

To become a leading centre for battery engineering education by delivering high-quality certification programs that prepare engineers to contribute to future energy storage and electric mobility technologies.

OUR MISSION

To empower students, researchers, faculty members, and industry professionals with practical engineering knowledge, modern development tools, and industry-relevant skills required for the rapidly evolving battery and electric mobility sector.

OUR APPROACH

Our programs combine engineering fundamentals, simulation-driven learning, model-based development, and real-world industry applications to create a structured learning experience focused on practical problem-solving and technical excellence.

CORE EXPERTISE

Battery Technology | Battery Management Systems (BMS) | Electric Vehicles (EV) | Battery Energy Storage Systems (BESS) | MATLAB & Simulink | Model-Based Design | Battery Testing & Characterization | Battery Pack Development

Building the Next Generation of Battery Engineers

LEARN FROM INDUSTRY EXPERTS

Learn from leading professionals working across Battery Technology, Electric Mobility, Energy Storage Systems, Battery Modeling, Controls Engineering and Global Automotive Industries.



DR. SUSHANT MUTAGEKAR
Ph.D., IIT Madras

Lead Instructor | Battery Expert | Founder, Battery Learning Hub Pvt. Ltd.

GUEST SESSIONS BY INDUSTRY EXPERTS



RAVIN SINGH

Battery Modelling and Controls Engineer
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MS, University of Maryland
BTech, IIT BHU



RAJEEV GURU

Quality Engineer
Tesla
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Expert
20+ Years with Volvo, Tata & HESS



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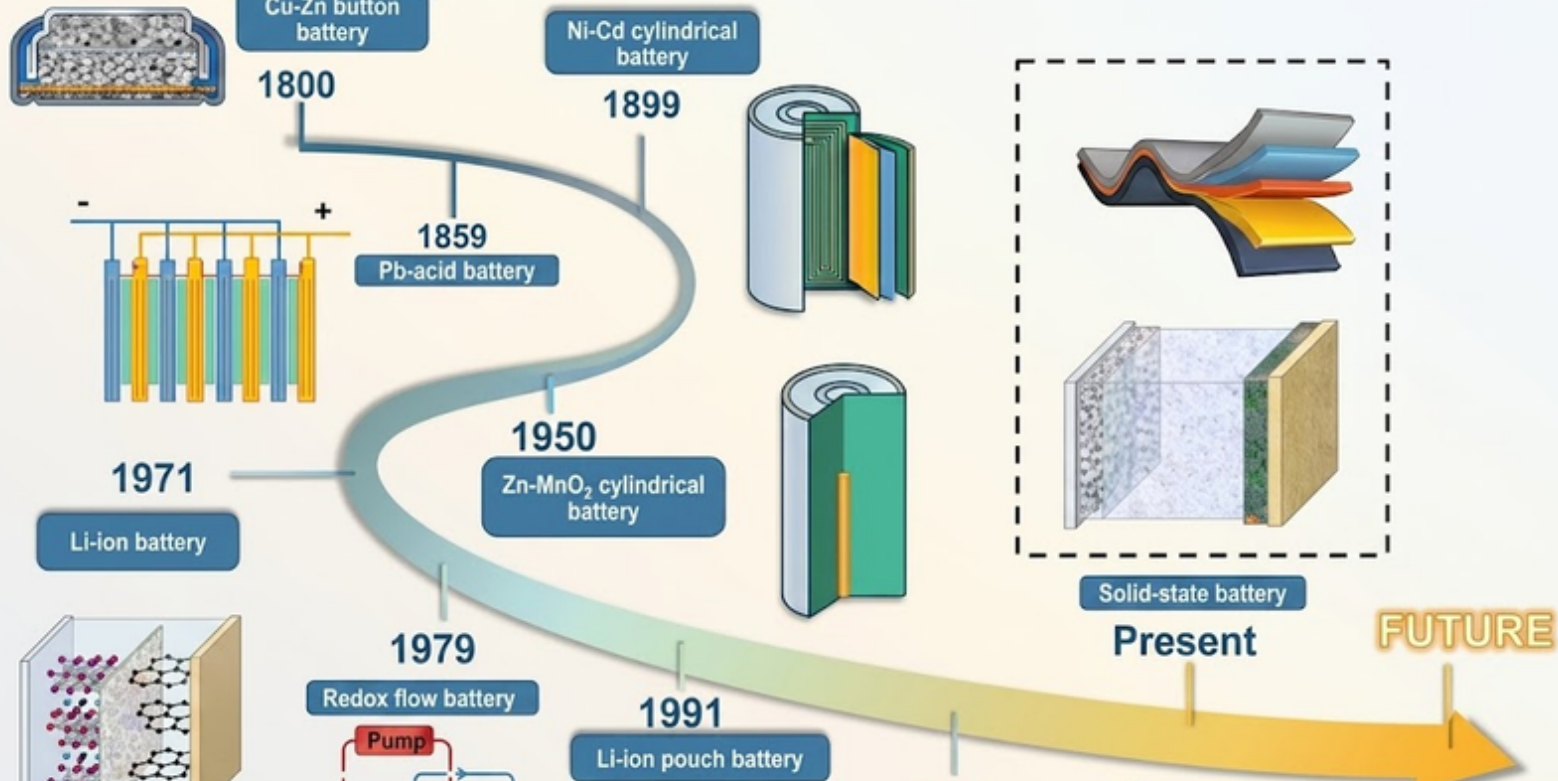


MARUTI PATIL

Researcher
KU Leuven, Belgium
Ex-ZF, Renault | M.S, IIT Madras



Gain insights from professionals working across **Tesla, Bosch, KU Leuven, Binghamton University** and **global mobility organisations**, bringing real-world industry perspectives to battery engineering education.



MODULE 1

Battery Cell Fundamentals, Electrochemistry & Terminology

Build a strong foundation in lithium-ion battery operation, chemistries, key electrical parameters and other emerging cell chemistries.

LEARNING OBJECTIVES

- Understand different battery chemistries and their working principles.
- Calculate key battery parameters (SoC, DoD, C-rate, energy, power).
- Interpret commercial battery datasheets.

MODULE HIGHLIGHTS

- Battery Fundamentals & Electrochemistry
- Li-ion Cell Chemistries
- Battery Performance Parameters
- Datasheet Interpretation



MODULE 2

Battery Testing & Characterization Basics

Learn essential battery testing techniques and how to read and interpret test data.

LEARNING OBJECTIVES

- Understand standard battery testing procedures.
- Interpret characterization results (capacity, internal resistance, efficiency).
- Recognize major battery testing standards.

MODULE HIGHLIGHTS

- Testing Equipment & Methodologies
- Cell Characterization Techniques
- Performance & Aging Overview
- Introduction to Industry Standards



MODULE 3

Battery Pack Sizing & Configuration

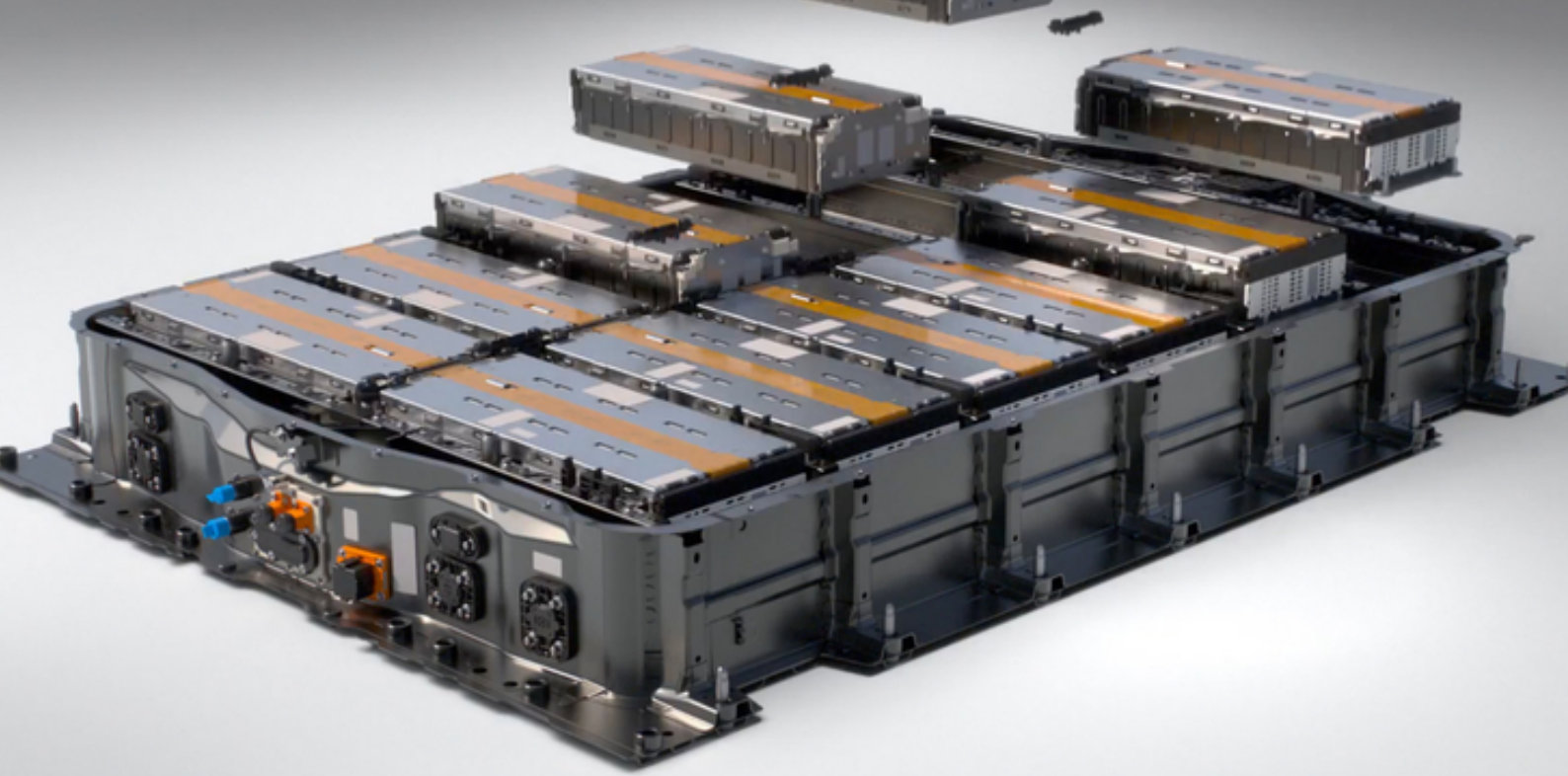
Translate application requirements into pack energy, voltage, and capacity specifications.

LEARNING OBJECTIVES

- Calculate pack energy and power requirements for EV and BESS use cases.
- Select suitable cells and chemistry for a given application.
- Design basic series-parallel configurations.

MODULE HIGHLIGHTS

- EV & BESS Energy Calculations
- Pack Sizing Methodology
- Cell & Chemistry Selection
- Series-Parallel Configuration Design



MODULE 4

Battery Pack Electrical, Mechanical & Thermal Design

Understand how cells are integrated into a complete pack with proper electrical protection, mechanical structure, and thermal management

LEARNING OBJECTIVES

- Design basic pack electrical architecture and select protection components.
- Understand mechanical packaging considerations.
- Estimate heat generation and compare cooling system approaches.
- Understand thermal runaway causes and prevention basics.

MODULE HIGHLIGHTS

- Pack Architecture & Electrical Integration
- Protection Components & High-Voltage Safety
- Mechanical Pack Layout Fundamentals
- Battery Thermal Fundamentals
- Air & Liquid Cooling Systems
- Thermal Runaway Awareness & Safety



MODULE 5

Battery Management System (BMS): Concepts & Functions

Understand what a BMS does, how it is structured, and why it matters for safe battery operation.

LEARNING OBJECTIVES

- Describe the architecture and key functions of a BMS.
- Understand protection, balancing, and communication roles.
- Interpret basic BMS fault conditions.

MODULE HIGHLIGHTS

- BMS Architecture & Hardware Overview
- Protection & Cell Balancing Concepts
- Fault Detection & Communication Basics
- Introduction to Functional Safety

COURSE PRICING

Without Lab Access

₹10,000 + 18% GST

- All 5 Module Video Lectures
- Course Materials & Notes
- Certificate of Completion
- Biweekly Live Interactive Sessions
- Upto 6 months Content Access



Scan Me

BULK BOOKINGS

5-10 seats: 5% OFF | 11-20 seats: 10% OFF | 21+ seats: 15% OFF

Contact: support@batterylearninghub.com

PROGRAM DETAILS & SUPPORT

LEARNING FORMAT

- Recorded Modules
- Biweekly Live Interactive Sessions

PROGRAM DURATION

- 2 Months Learning Journey
- 6 Months Content Access

CERTIFICATION

- Certificate of Completion from Battery Learning HUB.

CAREER SUPPORT

- Career Guidance
- Resume Building
- Placement Opportunities

FREQUENTLY ASKED QUESTIONS

How do the live sessions work?

Biweekly live sessions are conducted for doubt-solving, technical discussions, and industry insights. These are interactive sessions designed to complement the recorded content.

Flexible learning. Industry mentorship. Practical exposure. Career-focused outcomes.

CERTIFICATE OF COMPLETION



Certificate of Completion

This certificate is awarded to

Your Name

in recognition of the successful completion of the "Foundational Certification Program in Battery Engineering" conducted by Battery Learning Hub Pvt. Ltd.



Battery
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Verified Certificate

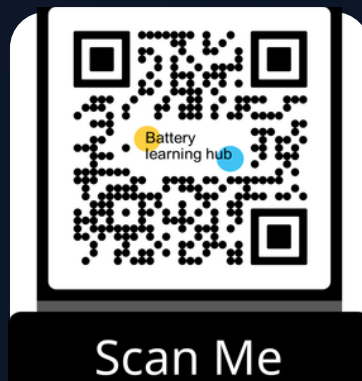
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Director

Dr. Sushant Mutagekar
Ph.D, IIT Madras

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