



Lithium-ion Battery Technology - Condensed course for automotive engineers

This course is a deep dive in lithium-ion battery technology from cell chemistry to complete battery pack design and battery management system. The content is aimed for engineers that need a deeper knowledge of battery technology in terms of materials, performance and durability. The course is based on lectures and demos.

The lecturer is a specialist with long experience in lithium-ion battery system design.

Course length: 16 hours containing lectures and demos

Course overview:

- High-level overview
 - Nomenclature
 - Li-ion chemistries
 - Materials - prices, production and supply chains
- Battery system design loop
 - Cell selection
 - Cell electrical and thermal model
 - Thermal system design
 - Electric system design
 - BMS - Electronics
 - Validation and certification
 - Battery life and after life
- Laborations in small groups
 - Simulation with advanced equivalent circuit for li-ion battery

Course target group:

Automotive engineers who needs a deeper understanding for lithium-ion battery technology

Course outcomes:

- Better understanding of technical requirements for lithium-ion battery design and components
- Balancing of electrical, thermal, lifespan and cost requirements
- Knowledge of the basic functionality of a battery management system