

## Advanced battery production and digitalization (BAT-PROD-2)

### Short Description

Participants will acquire advanced knowledge in battery production, digitalization, quality assurance and battery circular economy and apply it practically to effectively participate in the construction, ramp-up and operation of new electric vehicle battery factories or to take a leading role. The course is conducted in cooperation with RWTH Aachen University, one of Germany's leading universities in engineering and electromobility. The course is offered to you in a hybrid format that combines traditional classroom training with online training. The hybrid training format includes the identical content of the BAT-PROD-2 classroom and online training courses in an optimized form for your maximum learning success.

### Objectives

Participants will gain advanced knowledge and in-depth knowledge in battery production and digitalization, including quality assurance, cleanroom techniques and the production of next-generation battery cells. They will be able to apply data-driven production planning and control, digitization of assembly lines, and the use of data analytics and artificial intelligence in their daily work. In addition, they will gain extensive knowledge of battery raw material production, cell chemistries and the battery circular economy to effectively participate in the construction, ramp-up and operation of new electric vehicle battery factories or to take on leading roles.

### Target Group

- Planners, developers, technicians, project managers, etc.
- Electrical and mechanical engineers

### Content

1. Advanced Battery Production and Digitalization
  - Quality Assurance in Battery Production
  - Clean and Dry Rooms in Battery Production
  - Production of Next-Generation Battery Cells
  - Data Collection, Storage & Preparation in the Production Environment
  - Digitalization for Assembly Lines – Challenges & Opportunities
  - Use of Data Analytics and AI in Electromobility Component Production
  - Data-Driven Production Planning & Control via Digital Twins
  - Identification & Implementation of Data-Based Approaches in Battery Production
2. Battery Raw Material Production and Cell Chemistries
  - Production of Anode Active Material (AAM)
  - Production of Cathode Active Material (CAM)
  - Manufacturing of Inactive Battery Components Inside and Outside the Cell
  - Raw Material Source Recycling: Opportunities & Challenges
  - System Design and Development Potentials
  - Cell Design and Development Potentials
  - Cell Chemistry and Development Potentials
  - Modeling and Simulation of Batteries
3. Battery Circular Economy
  - CO2 Footprint in the Battery Circular Economy
  - Repair, Remanufacturing, and Re-use
  - Design for Re-X
  - Battery Recycling: Logistics, Dismantling & Deactivation
  - Battery Recycling: Mechanical Pre-treatment, Pyrometallurgical and Hydrometallurgical Processes
  - Battery Recycling: Direct & Production Scrap Recycling
  - Raw Material Source Recycling: Opportunities & Challenges

### Prerequisites

Successfully completed "Introduction to Battery Production and Battery Technology (BAT-PROD 1)" course or similar qualification.

### Type

Face-to-face training

### Duration

3 days

### Language

en