RWTH Aachen Campus Certificate Course

Chief Battery Officer

November 4th-6th, 2025 | Web Seminar
November 25th-27th, 2025 | In-Person Training

Organisers

PEM | RWTH Aachen University (Production Engineering of E-Mobility Components)
The Chair of PEM of RWTH Aachen University is dedicated to all aspects of research, consulting and teaching in the field of electrified mobility: from the manufacture to the recycling of battery systems to fuel cells and the production of the electric drivetrain through to entire vehicle concepts. Many years of expertise are also repeatedly utilised in numerous research projects and industrial collaborations.
www.pem.rwth-aachen.de

CARL | RWTH Aachen University (Center for Ageing, Reliability and Lifetime Prediction of Electrochemical and Power Electronic Systems)
CARL is the most modern interdisciplinary university research centre for the integrated research and development of ageing and failure mechanisms of power electronic and electrochemical components and systems. Scientists research processes and methods that enable to foresee reliability and service life of new materials and systems in a short time with a high degree of accuracy.
www.carl.rwth-aachen.de

ISEA | RWTH Aachen University (Power Electronics and Electrical Devices)
The Institute for Power Electronics and Electrical Drives (ISEA) of RWTH Aachen University is a leading research institution that focuses on the development of power converters, electrical drive systems and energy converters. The institute includes the Chair for Electrochemical Energy Conversion and Storage Systems held by Prof. Dr. Dirk Uwe Sauer, who researches and develops optimal energy storage solutions for mobile and grid applications. To achieve this, detailed aging simulations and electro-thermal models of technologies are created and parameterised with laboratory analytics.
www.isea.rwth-aachen.de

Campus Forum GmbH at RWTH Aachen Campus
As a service provider for further education Campus Forum supports clusters, centres and companies in the conceptual design, implementation and management of further education and events. The range of services covers the entire spectrum of conception and development of suitable formats to operational implementation. The Campus Forum is also responsible for participants and speakers around the event.
www.campusforum.de

Greeting

Battery technology: challenge and opportunity

Prof. Dr. Dirk Uwe Sauer

Prof. Dr. Heiner Heimes

From electromobility to stationary energy storage systems: Modern batteries and efficient production processes are becoming increasingly important. The success of your company may very soon be determined by high-performance, safe and durable battery systems or the expertise required to manufacture them.

The product “battery” is a highly complex composition of electrode materials, electrolytes, current collectors and additives in numerous cells which are interconnected with battery diagnostics, battery management and thermal management to form a battery system. Its production is characterised by the ramp-up of e-mobility, advances in recycling and a rapidly growing global market of innovative factors and processes. A classic training programme to become a battery expert is not offered anywhere – except by us. This is also because the range of disciplines extends from the natural sciences of chemistry, physics and mathematics to computer science, materials science, energy and electrical engineering as well as mechanical engineering.

Never has there been so much battery! Therefore, now is exactly the right time for further education in this emerging market. We will transform you into a “Chief Battery Officer” with our outstanding programme – and enable you to familiarise yourself with all the challenges and opportunities from production to the battery product. Based on this, you may make groundbreaking decisions from this time on – from your own specialisation to targeted supplier management.

We are looking forward to your participation!

Prof. Dr. Dirk Uwe Sauer,
University Professor,
CARL of RWTH Aachen

Prof. Dr. Heiner Heimes,
Member of Institute Management,
PEM of RWTH Aachen

Topics

In times of the energy transition and electromobility, competitive electric vehicle production in Europe is becoming increasingly important along the entire value chain. Global competition in battery production is promoting innovations. At the same time, the battery circular industry comes to the fore as a holistic approach to ensure sustainability and make value chains in Europe more robust. Battery raw materials and the production of battery cells and packs, as well as the safety of battery systems are key elements of this change. Developments like these lay the foundation for a sustainable and future-oriented industry and contribute to the implementation of the energy system transformation.

The RWTH Aachen Campus certificate course combines topics such as:

- Competitive electric vehicle and battery production
- Fundamental aspects of battery understanding
- Basics of the battery value chain
- Battery raw material production

In this qualification programme, you will learn how these subject areas intertwine and how you can shape a promising future in the sectors of energy and mobility as a certified Chief Battery Officer. Our experts will present practical case studies, success stories from the industry and infrastructure at RWTH Aachen Campus to you.

The course is designed as a blended learning format and is aimed at decision-makers whose activities lie in the fields of electric vehicle production, battery production, battery raw material production, battery cycle management, battery pack design, battery safety or diagnostics and battery management systems (BMS).

The course concludes with the acquisition of the RWTH Aachen Campus certificate.

Raw materials

While key components such as lithium, cobalt, nickel and graphite are essential for the performance of battery products, a sustainable procurement approach in production promotes the protection of the environment and resources. Research is focused on the development of alternative materials and enhanced recycling methods to reduce dependencies and increase product efficiency.

Safety

Safety aspects of batteries are crucial for the protection of users and the environment. Firstly, the risk of overheating and failures is minimised through the selection of high-quality raw materials and a safe cell chemistry. Intelligent battery management systems constantly monitor conditions such as temperature and voltage to prevent hazards. Quality controls in manufacturing ensure that every battery meets the standards.

Pack design

Not only does a sophisticated pack design take the end product into account but also plays an important role in production. The optimisation of heat conduction, weight distribution and space utilisation contribute to maximise the overall performance of the battery system. Production techniques are adapted accordingly in order not only to improve vehicle range, but also to enable the batteries to be used in a variety of ways in different sectors, from electric vehicles to stationary energy storage systems.

Battery production

The production of batteries establishes a connection between technological innovations and industrial processes. Increased efficiency through automation and advanced production techniques not only reduces manufacturing costs but also improves the quality and longevity of the batteries. A strong focus is on reducing energy consumption and minimising waste throughout the manufacturing process, resulting in a more environmentally friendly and sustainable battery production.

Battery ageing

Battery ageing describes the loss of capacity and performance of a battery storage system over its lifetime. This is caused by chemical and physical changes within a battery. Reducing battery ageing is of crucial importance for the longevity and sustainability of battery storage systems. Therefore, an understanding of ageing mechanisms is vital in order to improve product design and optimise battery operation.

Re-X

Re-X comprises the key strategies of repair, reuse and recycling and is an integral part of both battery production and the product life cycle. Materials from used batteries are recovered with the help of recycling, which not only conserves resources but also minimises the environmental impact. The reuse of battery components aims to extend the product life cycle by using them in new application contexts. Repair processes also help to expand the lifespan of batteries and reduce the necessity to procure new raw materials.

Programme Web Seminar

November 4th - 6th, 2025
Digital

Tuesday, 4th November 2025

09.00	**Welcome and introduction** Prof. Dr. Dirk Uwe Sauer, CARL of RWTH Aachen & Prof. Dr. Heiner Heimes, PEM of RWTH Aachen
10.00	Break
10.15	**Electromobility as an integral part of the energy transition – challenges, electricity and power requirements, battery requirements, alternative drives** Prof. Dr. Dirk Uwe Sauer, CARL of RWTH Aachen
11.15	Break
11.30	**Charging infrastructure and charging strategies for battery electric vehicles including dual use in vehicle-to-home and vehicle-to-grid** Prof. Dr. Dirk Uwe Sauer, CARL of RWTH Aachen
12.30	Wrap-up and certificate quiz 1/6
1.00 (pm)	**End of the seminar day**

Wednesday, 5th November 2025

09.00	**Battery Atlas 2024: Competitive electric vehicle production in Europe** Prof. Dr. Heiner Heimes, PEM of RWTH Aachen
10.00	Break
10.15	**Basics of battery production** Prof. Dr. Heiner Heimes, PEM of RWTH Aachen
11.15	Break
11.30	**Stationary battery applications – Marketing** Jonas van Ouwerkerk, ISEA of RWTH Aachen
12.30	Wrap-up and certificate quiz 2/6
1.00 (pm)	**End of the seminar day**

Thursday, 6th November 2025

09.00	**Production of next-generation battery cells** Prof. Dr. Heiner Heimes, PEM of RWTH Aachen
10.00	Break
10.15	**Sustainability of battery storage systems** Mark Junker, ISEA of RWTH Aachen
11.15	Break
11.30	**Testing and Re-X approaches of batteries** Prof. Dr. Heiner Heimes, PEM of RWTH Aachen
12.30	Wrap-up and certificate quiz 3/6
1.00 (pm)	**End of the seminar day**

You will receive your access data for the web seminar up to two days before the start of the course.

Programme In-Person Training

November 25th-27th, 2025
Presence (Aachen, Germany)

	Tuesday, 25th November 2025	Wednesday, 26th November 2025	Thursday, 27th November 2025
09.00	Welcome Prof. Dr. Dirk Uwe Sauer, CARL of RWTH Aachen & Prof. Dr. Heiner Heimes, PEM of RWTH Aachen	From the cell to the system – Battery pack design, sensors and diagnostics Dr. Florian Ringbeck, ISEA of RWTH Aachen	Enriching the European battery industry with innovations Dr. Christian Miesner, AVL List GmbH
09.15	Introduction to the basics of the lithium-ion battery Prof. Dr. Dirk Uwe Sauer, CARL of RWTH Aachen		
10.00	**Coffee break**	**Coffee break**	**Coffee break**
10.15	Raw materials for battery production Dr. Melanie Reichinger, PEM of RWTH Aachen	Module and pack production Dr. Melanie Reichinger, PEM of RWTH Aachen	Scaling research using the example of FFB Dr. Jonathan Krauß, Fraunhofer Research Institution for Battery Cell Production FFB
11.15	Battery service life, ageing models, ageing mechanisms Dr. Christiane Rahe, ISEA of RWTH Aachen	Battery performance with simulations (digital twin) using AI Prof. Dr. Weihan Li, ISEA of RWTH Aachen	Risk management and insurance cost optimisation through battery data analysis Jakob Bors, Accure Battery Intelligence Inc.
12.15	**Lunch break**	**Lunch break**	Wrap-up and certificate quiz 6/6
12.30			**Lunch break**
1.00 (pm)	Battery cell production Jessica Schmied, PEM of RWTH Aachen	Battery safety and simulation Benedikt Späth, PEM of RWTH Aachen	Wrap-up Prof. Dr. Dirk Uwe Sauer, CARL of RWTH Aachen & Prof. Dr. Heiner Heimes, PEM of RWTH Aachen
2.30 (pm)	Practice contribution: Enriching the European battery industry with innovations	From Challenges to Productivity: Laser-Driven Solutions in Electrode Coating & Drying Dr. Simon Britten, Laserline GmbH	End of the seminar
3.30 (pm)	Guided tour of the eLab Jessica Schmied/Melanie Reichinger, PEM of RWTH Aachen	Guided tour of CARL ISEA of RWTH Aachen	
4.30 (pm)		Wrap-up and certificate quiz 5/6	
5.00 (pm)	Wrap-up and certificate quiz 4/6	End of the seminar	
5.30 (pm)	End of the seminar		
6.00 (pm)		City tour & get-together	
6.30 (pm)	Dinner at the restaurant “Postwagen”		

Speakers

Jakob Bors
Battery Expert at the Custom Analytics Team,
Accure Battery Intelligence Inc.

Dr. Simon Britten
Senior Technology Manager,
Market and Technology Management
Laserline GmbH

Prof. Dr. Heiner Heimes
Member of Institute Management,
PEM of RWTH Aachen

Mark Junker
Head of Section Battery Grid Integration and Storage System Analysis,
ISEA of RWTH Aachen

Dr. Jonathan Krauß
Division Manager Digitalisation of Battery Cell Production,
Fraunhofer Research Institution for Battery Cell Production

Prof. Dr. Weihan Li
Junior Research Group Leader Artificial Intelligence for Batteries,
ISEA of RWTH Aachen

Dr. Christian Miesner
Vice President Battery & Cell Testing / ITS,
AVL List GmbH

Jonas van Ouwerkerk
Head of Section Battery Grid Integration and Storage System Analysis,
ISEA of RWTH Aachen

Dr. Christiane Rahe
Head of Section Battery Modeling Analytics and Lifetime Prediction,
ISEA of RWTH Aachen

Dr. Melanie Reichinger
Research Associate,
PEM of RWTH Aachen

Dr. Florian Ringbeck
Chief Managing Engineer,
ISEA of RWTH Aachen

Prof. Dr. Dirk Uwe Sauer
University Professor,
CARL of RWTH Aachen

Jessica Schmied
Division Manager Powertrain: Production Technology & Organization,
PEM of RWTH Aachen

Benedikt Späth
Research Associate,
PEM of RWTH Aachen

The Event

Target group

The Chief Battery Officer certificate course is aimed at managers facing the challenge of managing new processes in the field of battery technology in their company.

Your benefit

In summary, the course offers you the following added value:

- Ability to promote and manage new processes in your company
- Scientific management and quality assurance by Prof. Dr. Heiner Heimes and Prof. Dr. Dirk Uwe Sauer
- Speakers from RWTH Aachen University and renowned companies
- Extensive practical relevance through examples from the industry, guest lectures and hands-on experience
- Guided tours of the laboratories of PEM of RWTH Aachen and the Center for Ageing, Reliability and Lifetime Prediction of Electrochemical and Power Electronic Systems (CARL) of RWTH Aachen
- Documents and literature references for deepening and refreshing the course content
- Illumination of different subject areas and aspects
- Building a network with participants and speakers

Examination modalities and certificate

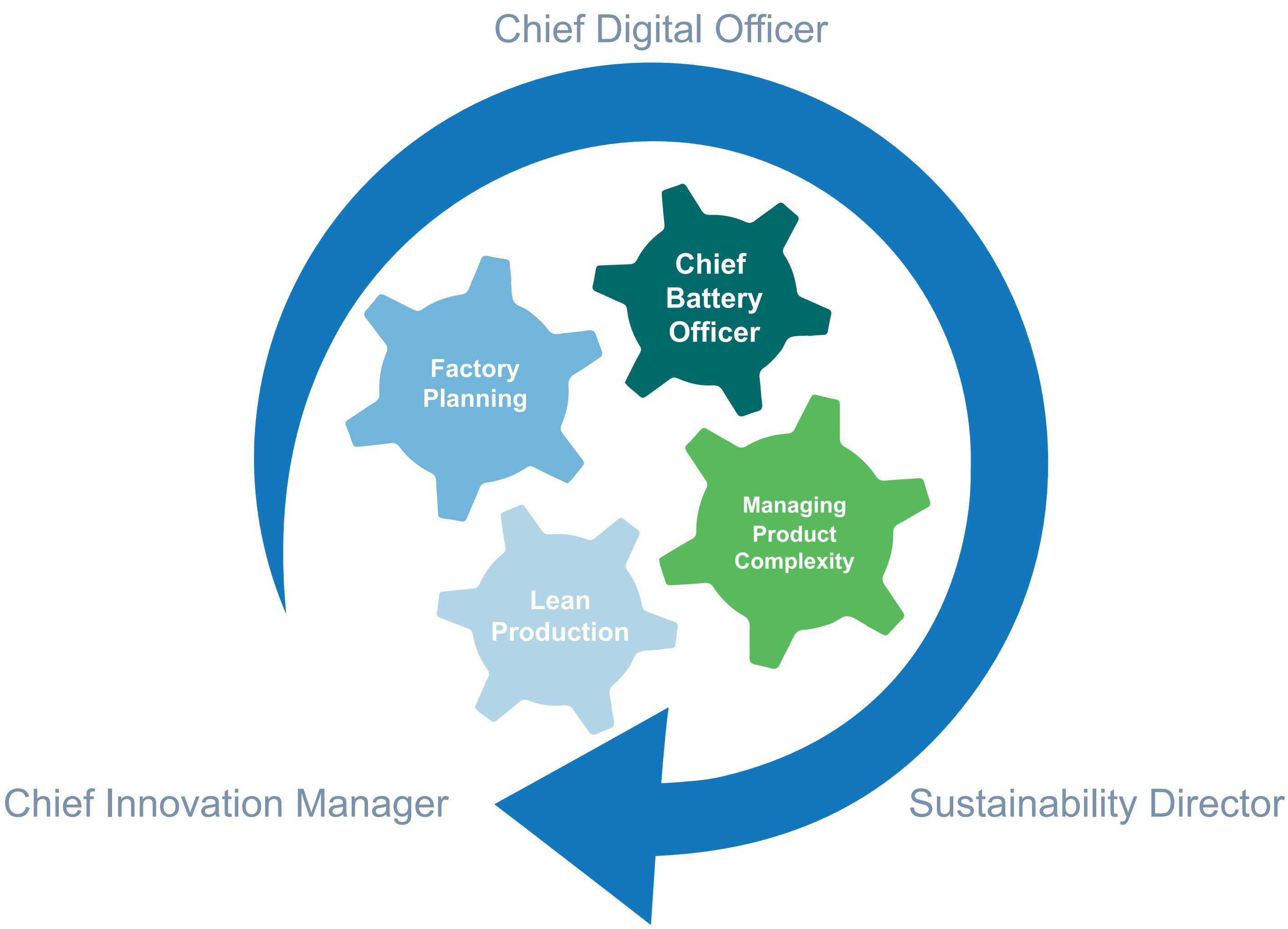
To successfully complete the certificate course, you will take several short examinations in both parts of the course (Web Seminar and In-Person Training). After passing the course, successful participation is officially attested with the RWTH Aachen Campus certificate. It is possible to retake the exam if you do not pass.

Social events

As part of the course, our social events offer you the opportunity to get in contact and enter into dialogue with the organisers, participants, and speakers. Get to know the picturesque old town of Aachen and experience local highlights with us.

RWTH Aachen Campus Certificate Courses

High-quality lectures, implementation-oriented workshops and an exciting network: As a participant in our certificate courses, you will benefit from an intensive dialogue with our experts, latest research findings and food for thought from the industry, the unique atmosphere on the RWTH Aachen Campus and hands-on practical exercises.



With our RWTH Aachen Campus certificate courses, we cover a whole range of topics such as sustainability, mobility of tomorrow and digitality. Choose your topic and train with us to become an expert. We are looking forward to your participation.

If you are interested in an offer to participate in several course programmes, please contact us at info@campusforum.de.

Organisation

Date
November 4t^{h}-6th, 2025 | Web Seminar
November 25th - 27th, 2025 | In-Person Training

Venue
Web Seminar:
Digital (you will receive access data shortly before the course starts)

In-Person Training:
ADITEC Building
Steinbachstraße 24
52074 Aachen
Germany

Course fee
4.250,- €
Course materials, refreshments during breaks, lunch and evening events are included, but not the costs for overnight accommodation as well as travelling to and from the course. Please pay the fee only after receiving the invoice. If registration is cancelled up to one week before the event, € 100 will be charged for administrative costs. Otherwise, the full participation fee will be charged.

Registration
Please register online until 28th October 2025. Naturally, a preliminary reservation via phone is possible. If the written registration has not been received by four weeks before the start of the course, we reserve the right to allocate your provisionally reserved place to another interested party. Registrations will be processed in order of receipt.

Your contact
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Register conveniently and directly online!

Certificate

Accommodation
Room reservations can be made via

aachen tourist service e.v.
PO Box: 10 22 51
52022 Aachen, Germany
Phone +49 241 18029-50
Fax +49 241 18029-30
E-mail booking@aachen-tourismus.de
Internet www.aachen-tourismus.de

DB BAHN

Deutsche Bahn Special – Congress Ticket
In co-operation with Deutsche Bahn, we offer you the opportunity to arrive and depart in a relaxed, cost-effective and ecological way. Your journey to and from the event on long-distance services by Deutsche Bahn with the event ticket will be carried out by 100 % green electricity.

Please find further information on our website:
www.campusforum.de

Further information:
You can find this and other events at
www.campusforum.de

Thinking the Future
Zukunft denken

Status: September 2025