DB Rail Academy

Worldwide high-quality railway training

DB Engineering & Consulting GmbH, part of DB E.C.O. Group | 2024

Message from Heiko Scholz, Global Director DB Rail Academy

DB Rail Academy, the international training provider of DB Engineering & Consulting, has the objective of meeting individual needs for high-quality training and education in the transportation sector worldwide.

To this end, we offer holistic training and competence management solutions in all areas of transportation, from analyzing training needs to setting up and operating academies with a wide range of training and development programs for the experts of tomorrow.

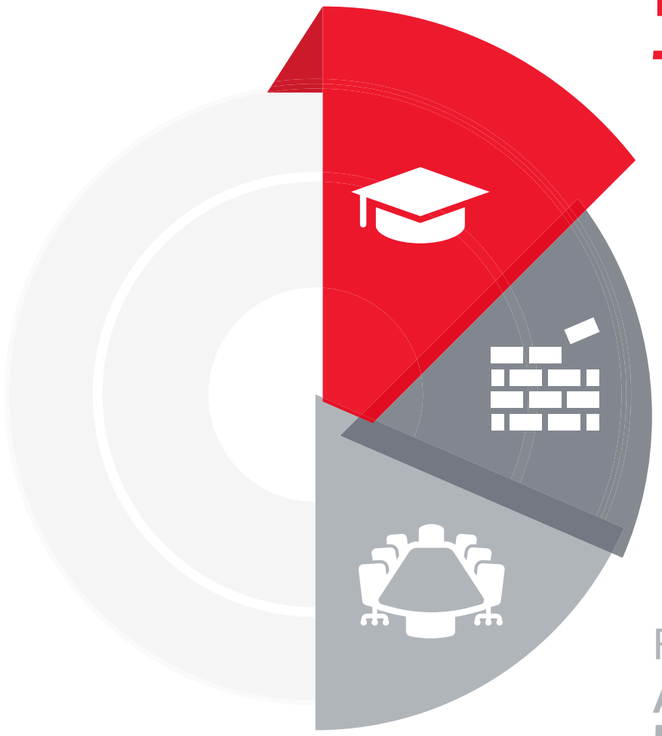
We can fully customize our solutions to meet the needs of our clients. We work with modern and efficient learning formats and methods, which we tailor to cultural, thematic and regulatory aspects as well as to the language used.

In view of the rapidly increasing demand for international training, our customers rely on the experience gained from 185 years of successful rail business in Germany. While Deutsche Bahn works with more than 3,000 training courses, programs and vocational education, we at DB Rail Academy focus on tailoring and developing highly relevant courses for our international customers. In doing so, we draw on our technical expertise from projects in more than 100 countries.

This training catalog is intended to give you an initial overview of some of our training courses. However, please note that additional topics are available on request.

Let us shape the future of railways together.

DB Rail Academy supports the global transport market with training and human resources development



Rail Academy **Training**

- Certificates & Degree Programs
- Professional Training
- Training & E-Learning Development
- Train the Trainer

Rail Academy **Competence Management**

- Training Needs & Competence Analysis
- Establishment of Rails Academies
- Talent Management
- Competence & Performance Management

Rail Academy **Academy Management**

- Management & Operation of Rail Academies

We offer a variety of high-quality Training and Education Programs, from technical to managerial knowledge

Training Center

(Vocational Trainees and Operational Staff)

- Initial Vocational Education
- Train Drivers
- Vehicle Engineering
- Operations
- Infrastructure
- Soft Skills & Business Know-How

Executive Academy

(Managers & Executives)

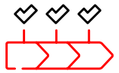
- Leadership Programs
- Management Programs
- Managerial Effectiveness Programs
- Dialogue Forum and Executive Talks

Rail Institute

(Specialists & Experts)

- Railway Infrastructure
- Vehicles
- Operations
- Intermodal Transportation Systems
- Future of Transportation Systems

Based on 180 years of rail expertise



Comprehensive but modular concept

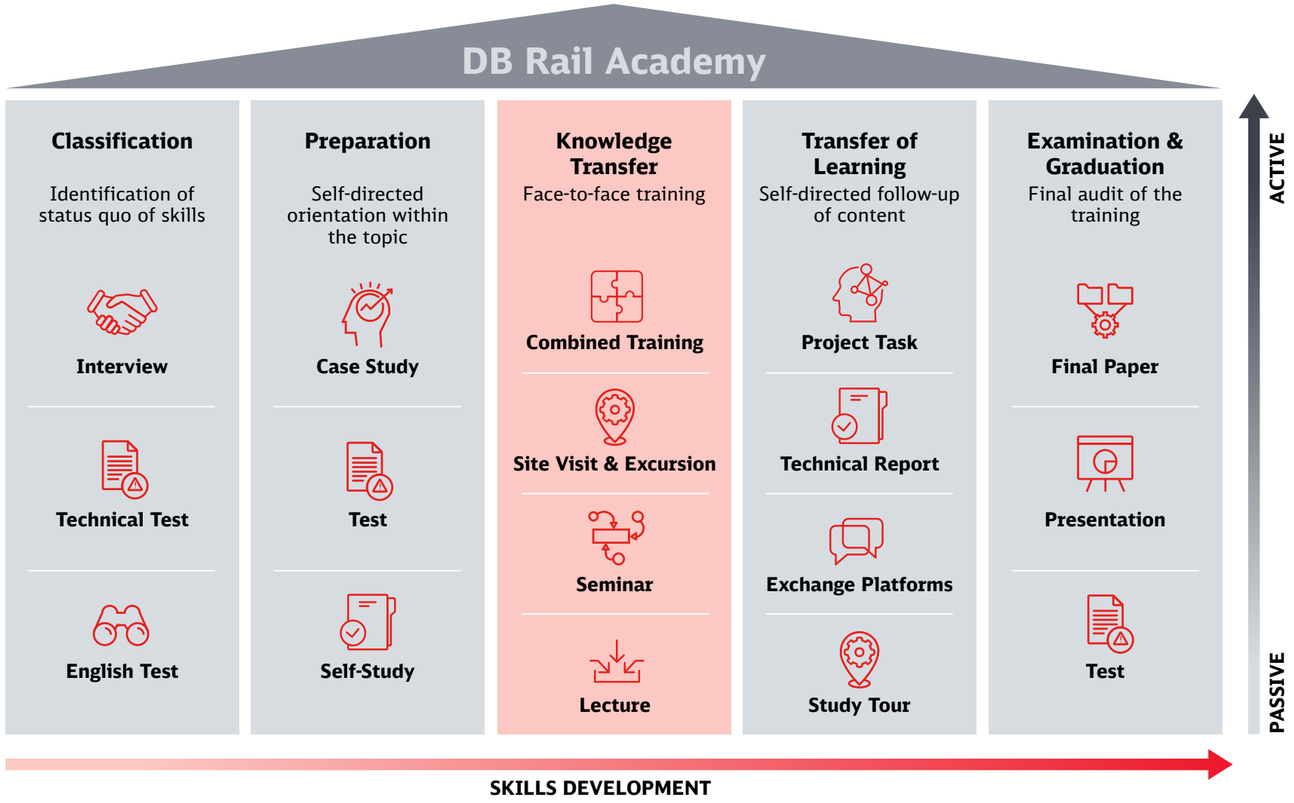
Based on training standards and DB's methodology

Executed worldwide in the transport sector in different production models

According to market needs, national, technological, legal and cultural requirements

Methodology of the Global Rail Academy

To achieve the best possible results, we recommend the following path and trainings. Our methodology aims to develop skills and transfer knowledge from theory to daily business. In general, the path and modules can be arranged individually.



Classification

Identification of the participant's status of knowledge by testing English skills and/or technical skills, and/or identifying personal strengths as well as training needs.

Preparation

Equalizing different levels of knowledge, building a common ground of knowledge, getting familiar with the topic, arousing interest and increasing motivation by solving various tests, self- & case studies.

Knowledge Transfer

In various types of face-to-face trainings, participants expand their knowledge. Ensuring knowledge transfer from theory to practice through training in practice facilities and through networking opportunities.

Transfer of Learning

Self-directed follow-up training, tasks and transfer projects to ensure the application of learning in the participant's environment and the recapitulation of knowledge.

Examination & Graduation

Final assessment of knowledge through solving tests, presentations and final papers. Providing feedback on the level of learning.

Glossary

Target Groups

Newcomers: Newcomers have no professional experience in their respective field. This target group includes graduates, apprentices, trainees and employees from different fields of expertise.

Executives: Executives are people with extensive experience in their respective field and with managerial responsibility. This target group includes all management levels. Executives have extensive experience in management but not necessarily a deep expert knowledge in a particular area. The target groups management and executives are usually combined into one target group.

Specialists: Specialists are professionals with experience in their respective field. This target group includes all technical and non-technical experts without managerial responsibility. Specialists either have an academic degree with a broader range of topics or a certification of vocational education.

Course Level

Fundamental: Fundamental training sessions involve the transfer of basic knowledge. No prerequisites are required. The objective of this training is to build a fundamental understanding of the respective topic.

Advanced: Advanced training builds on fundamental training by expanding or enhancing knowledge in the respective field. The objective of the training is to deepen the respective topic and to build a comprehensive understanding.

Type Of Course

Online Training: In a digital environment, knowledge and experience will be conveyed in our virtual classroom. Although the trainer and students do not physically share the room, a conducive learning environment is created through interactive communication with and engagement of participants. This type of training allows students from all over the world to join in, no matter where they are, and communicate with other experts worldwide. Our virtual classrooms promote interactivity and enhance the learning experience. It is a good way to acquire knowledge in a familiar environment.

Practical Training: Practical training is training without theoretical input at any time. The training takes place in a real or simulated environment. The objective is to learn through a guided teaching method and learning by doing.

Program: Programs are long-term training events that combine individual products or modules into a final product and that include a variety of training courses and topics. A program follows a defined structure and schedule. The objective of this type of program is to professionalize in an intensive and comprehensive manner by illuminating different sub-topics.

Single: This type of course is a single or stand-alone product or a module that can be combined with others to become a program or can be conducted on its own.

Study Tour: Study tours are small programs that are organized in Germany to gain insights into the rail business. Elements of a study tour are different theoretical input sessions, site visits and excursions, networking and evening events. The objective of a study tour is to combine a site visit tour of DB facilities with theoretical knowledge.

Certification

Attendance Certificate: A Certificate of Attendance, or Certificate for short, is a DB Rail Academy brand document that confirms successful participation in a training course or program. There is no evaluation system behind it and therefore no official evaluation or final examination. This is issued under the responsibility of the DB Rail Academy.

Degree: A degree is a DB Rail Academy-specific, academically oriented education or training program. In order to complete this type of program, participants must undergo a DB RA-specific assessment system. This includes learning objectives that compare content with its application (transfer). Assessment includes daily assessments, project work, reports, presentations and/or testing by an expert.

Graduation: Graduation takes place after successful completion of a long-term academic study program. DB RA offers different study programs in cooperation with international universities. This includes at least one locally or internationally recognized document confirming compliance with local or international standards. The certification allows access to certain professions and fields of work. It is based on recognized and standardized content with a complex evaluation system including exams.

Recognized Certification/Degree: A recognized certification or degree is certified by a local body or an official international certifier. The quality seal confirms compliance with local or international standards.

Methodology

Assessment: We believe that assessment does not just mean evaluating the success of learning after training is completed but to also identify the level of knowledge before training. Understanding each participant's level of knowledge helps us to transfer knowledge to the right level. Through daily assessments during the training, our trainers receive feedback on the topics that need to be reflected on in more depth and they can also give learners feedback on how intensive their learning process has been so far. Final assessments, on the other hand, give a full picture of how successful the training was for our participants and our trainers.

Lecture: In lectures, the teacher or expert plays a dominant role in knowledge transfer. The learners, on the other hand, consume the structured learning content. The objective is to introduce new content, reach a large number of employees at the same time or to build a common ground of knowledge. Another description is theoretical training.

Seminar: In seminars, an interactive treatment of a topic takes place under guidance of an expert (teacher, lecturer). The participants acquire knowledge through interaction with each other and with the expert. In this context, learning is the exploration of a topic.

Categories


01
Metro & Light Rail


02
Rail Infrastructure


03
Rail Operations & Maintenance


04
Rail Quality, Safety & Security


05
Rolling Stock


06
Innovation & Digitalization


07
Public Transport


08
Business Know-How
LEARN & LEAD

01

Metro & Light Rail

According to estimates by the United Nations, about two-thirds of the world's population will be living in urban areas by 2050[1]. Since urbanization is one of the most important global trends, Metro and Light Rail transportation systems are becoming increasingly important. While Metro systems run largely underground, Light Rail systems run primarily on street surfaces, and they are also lower capacity and lower speed than Metro systems. Both aid social and economic development as well as also help to reduce traffic congestion. Moreover, they improve environmental conditions. All these aspects make them an essential component of the urban mobility of the future.

As part of DB Engineering & Consulting, we operate in more than 130 countries and across all modes of transport. Thus, we can offer you valuable insights from both a theoretical as well as operational viewpoint. Since urban rail transport is one of our specialties, we have been involved in the establishment of a training institution in this field, the DB DLG Rail Academy in Dalian, China.

[1] Source: United Nations: Population Division. Urbanization, n. d.

Back to all categories

COURSES

Metro & Light Rail

Apply Digital Technology in Metro System
Basic Training Communication-Based Train Control
Certification as CBTC Expert
Communication-Based Train Control (CBTC) Fundamentals
Fundamentals of the Railway Industry
International Certification in Management of Railway and Metro
Metro Operation, Capacity Management & Timetabling
Metro Station Operations
Metro: Introduction to Rolling Stock Maintenance
Metro: Maintenance Equipment
Metro: Maintenance Key Components
Metro: Maintenance Workshop Planning
Metro: Management Process for Operators
Metro: Passenger Transport Services
Principals of Bogie Technology
Principals of Metro System
Risks and opportunities of setting up a mixing system
The inner workings of Metro Systems

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Rmt5025

Apply Digital Technology in Metro System

Gain an overview of the digital technologies applied in metro systems and deepen your knowledge by applying an international case study.

Course content

- Overview of the benefit by adoption robot systems
- Digital system management for the metro in Singapore

Duration
1 day

Target group
All

Course level
Fundamental Training

Type of training
Online or Classroom

Methodology
Seminar

Certification
Attendance Certificate

Rmt5038

Basic Training Communication-Based Train Control (CBTC)

CBTC helps achieve maximum capacity and provides flexibility to respond to traffic demand while maintaining safety requirements.

Course content

In modern railway signaling systems, Communication-Based Train Control (CBTC) can mainly be used in urban railway lines, either for metro or heavy rail systems. CBTC systems are widely accepted worldwide as they help achieve maximum capacity, minimum headway and to meet safety requirements. Modern CBTC systems also allow the incorporation of different levels of Grades of Automation (GoA).

This training is made up of various modules covering different aspects of CBTC with practical project references, and Q&A sessions in every module.

1. Motivation and background for CBTC systems
2. Operating modes and operating mode transitions
3. Surrounding systems of automatic train control systems
4. Grades of automation and main functions
5. Operating modes and operating mode transitions
6. Reliability, costs and benefits
7. Migration, testing and implementation

Duration
4 days

Target group
All

Course level
Advanced Training

Type of training
Online or Classroom

Methodology
Lecture

Certification
Attendance Certificate

Rmt5032

Certification as Communication-Based Train Control (CBTC) Expert

Become an expert in Communication-Based Train Control (CBTC) by understanding its architecture, components, system functioning and operation.

Course content

In modern railway signaling systems, CBTC can mainly be used in urban railway lines, either for metro or heavy rail systems. CBTC systems are widely accepted worldwide as they help achieve maximum capacity, minimum headway and to meet safety requirements.

This certification guarantees that you have a deep understanding of the CBTC system and its architecture. With this certification you are able to apply your specialized knowledge to support railway companies around the globe. It leads to you becoming a recognized expert in the technical components of CBTC including the basics of CBTC technology and operations.

An expert in Communication-Based Train Control (CBTC) understands the intricacies of regular and special operations, which helps to achieve the maximum capacity and bring flexibility in responding to traffic demand, whilst maintaining safety requirements. An expert will know how to handle challenges in implementing existing legacy networks.

Requirements for taking the final assessment and achieving the certification

“Basic Training Communication-Based Train Control (CBTC)”, or both courses: “CBTC Fundamentals” and “Implementation of CBTC & Operation”

Duration
1 hour

Target group
All

Course level
Fundamental Training

Type of training
Online or Classroom

Methodology
Assessment

Certification
International Certification

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Rmt5020

Communication-Based Train Control (CBTC) Fundamentals

Learn about the fundamentals of the modern rail train control system, Communication-Based Train Control (CBTC).

Course content

In modern railway signaling systems, CBTC can mainly be used in urban railway lines, either for metro or heavy rail systems. CBTC systems are widely accepted worldwide as they help achieve maximum capacity, minimum headway and to meet safety requirements.

This course includes a comparison of existing CBTC systems and upcoming ETCS levels in India. It helps you to understand the existing Grade of Automation in the Indian Metro system as well as degraded modes of operations. Furthermore, you will understand challenges in converting (CATC) signaling into CBTC and constraints of using the data network. This training will also help you understand special operations such as train rescue and work train operations.

- Introduction to train control systems (overview of block systems, track detection devices, Grades of Automation (GoA))
- CBTC architecture
- DCS Overview and its Functionalities
- Terminologies used in CBTC system
- Overview of various track side and train borne signaling equipment, i.e. signals, point, point machine, axle counter, zonal controllers, VOBC, accelerometer, speed sensor, Train Operator Display (TOD), proximity plate
- Overview of components of communication, wayside and onboard devices
- Comparison of data communication system (WLAN, LTE, GSM-R)
- Special operations (rescue operation & work train operation)
- Comparison of CBTC with heavy rail systems equipped with ATP/ATC systems and mainline railways not equipped with ATP system

Duration
6 days

Target group
All

Course level
Fundamental Training

Type of training
Online or Classroom

Methodology
Seminar

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Rrf1103

Fundamental Knowledge of the Railway Industry

Gain a basic understanding of the major components of the rail industry and how these components come together to create the rail value chain.

Course content

This training course focuses on different types of rail systems and rail vehicles and their interconnections. Participants will develop an understanding of key concepts and learn how infrastructure and rolling stock interact. In addition, they will learn about interoperability requirements as well as current trends in the development and operation of rolling stock.

- Definitions and Characteristics of Railways, Rail Systems and Rolling Stock
- Overview of Main Components and Assembly Groups of Rail Vehicles
- Interfaces between Rolling Stock & Infrastructure, Interoperability
- Current Trends in Rolling Stock Development and Operation

Duration
2 days

Target group
Specialists & Executives

Course level
Fundamental Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Voc1011

International Certification in Management of Railway and Metro

The International Certification in Management of Railway and Metro provides the foundation for improving management skills by promoting an understanding of the fundamental characteristics of railroad systems and how the various elements interact to form a safe and efficient transportation system.

It highlights the most important aspects of each of the core areas of mobility by articulating the impact of management decisions and behaviors. This new perspective is based on the direct transfer of expertise from DB experts with a proven track record in rail management. It therefore aims to train managers and experts in decision-making positions to ensure higher productivity, efficiency and cost reduction in mixed traffic.

Course content

The program has a minimum workload of 30 hours, spread over 10 days within 5 weeks.

- Module 1 - Railway Operation & Strategic Management
- Module 2 - Railroad Systems
- Module 3 - Infrastructure & Maintenance
- Module 4 - Rolling Stock & Maintenance
- Module 5 - Quality & Safety Management

Duration
5 modules

Target group
Executives

Course level
Fundamental Training

Type of training
Program

Methodology
Seminar

Certification
Degree

Rmt2002

Metro Operation, Capacity Management & Timetabling

Understand the principals of the rail system and how its components relate to each other for efficient and safe rail operations in general. In addition, you will be guided to a deeper understanding of key topics in rolling stock and vehicle engineering, infrastructure and its elements, operations, and metro concepts.

Course content

- Infrastructure & Safety at the metro:
  - General core elements of safety and control & infrastructure
  - Basic signaling systems
  - Challenges and implications of signal box technology
- Operation Systems at the metro:
  - Communication systems
  - ERTMS/ETCS and PTC
  - Radio/GPS for train control
  - Simplified low capacity systems
- Automatization of rail operations reporting
- Basic elements of Rolling Stock: aspects, functions and interactions of components
- Planning approaches and railroad planning process from service goal to operation concepts to infrastructure requirements
- Identification of infrastructure requirements
- Phase of infrastructure investment
- Capacity management and Service Planning Market/demand analysis
- Typical product types and service design approaches, core product and ancillary services
- Emergency Management

Duration
4 days

Target group
All

Course level
Advanced Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Rmt5022

Metro Station Operations

Gain an initial understanding of metro station operations and awareness of station management.

Course content

- Station overview
- Station crowd control
- Managing lost and found
- Management of station emergencies
- Managing of special events

Duration
5 days

Target group
All

Course level
Fundamental Training

Type of training
Online or Classroom

Methodology
Seminar

Certification
Attendance Certificate

Rmt1087

Metro: Introduction to Rolling Stock Maintenance

Get an introduction to rolling stock maintenance and learn the principals and strategies of maintenance.

Course content

- Maintenance programs for a similar vehicle at DB, responsibilities and process structure, in- and outsourcing
- Principals of Maintenance strategy:
  - Light & heavy
  - Planning preventive
  - Corrective
  - New methods: Conditional Based Maintenance, predictive Maintenance
- Basic structure and processes of maintenance - manual and work instructions
  - From inspection to main inspection
- Structure, creation and optimization of the maintenance programs, incl. suitable tools
- Explanation of the interactions between operation and maintenance (feed into the plant, degree of exit, time and kilometer limitation, etc.)
- Risk analysis such as FMEA
- Presentation of Maintenance program for comparable vehicle
- Overview of EU Regulation
- Wheel bearing inspection and its evaluation/assessment depending on the maintenance level and the corresponding work contents/ maintenance depths
- Problems during the wheel bearing inspection

Duration
4 days

Target group
Specialists & Executives

Course level
Advanced Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Rmt1088

Metro: Maintenance Equipment

Learn about the latest technologies and digital solutions from DB's experience.

Course content

- Explanations of calibrated parts/calibrations/calibration measurements
- Presentation of the tools/devices/measuring instruments used during maintenance
- Explanation of the application of special tools/devices/measuring instruments during maintenance
- Maintenance of maintenance equipment
- Explanations of the sensors on the vehicle and on the track
- Explanation of the real-time data evaluation of vehicles
- Representation of SAP messages from vehicles/malfunctions in connection with spare parts management

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Rmt1089

Metro: Maintenance Key Components

Get to know the key components of maintenance and the depths of the individual components at metro.

Course content

- Maintenance measures, maintenance levels in connection with maintenance depths
- Explanation of the work steps of each maintenance level (work instructions) in connection with the maintenance depth through the metro
- Cooperation with manufacturers of individual components and devices and assemblies (several devices together)
- Obsolescence management and asset management
- Warranty claims against manufacturers and recourse claims (downtimes)
- IGBT maintenance and errors (IGBT=Insulated-gate bipolar transistor)
- Measures to avoid/reduce IGBT damage

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Rmt1090

Metro: Maintenance Workshop Planning

Get familiar with the staffing, centralization and decentralization of processes.

Course content

- Plant planning (vehicle planning, capacity utilization, personnel planning/vacation planning shift planning (single or multiple shift operation) task prioritization)
- Representation of dependencies (availability of the vehicle for maintenance, remaining time until the next use of the vehicle, availability of qualified personnel and spare parts, as well as tools, etc.)
- Presentation of the basics for depot planning and modernization, including staffing
- Representation of optimizations in the depot
- Bets practices and recommendations in regards to centralization and decentralization of processes' organization within the workshop
- DB Processes and concepts

Duration
4 days

Target group
All

Course level
Fundamental Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Rmt1091

Metro: Management Process for Operators

Learn about the management process for operators on the basis of metro and get an introduction to the basics of management.

Course content

- Management process such as vehicle and equipment maintenance
- Ticketing management at metro
- Passenger traffic management and control passenger traffic
- Introduction to Asset Management
- Management challenges

Duration
4 days

Target group
All

Course level
Fundamental Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Rmt1003

Metro: Passenger Transport Services

Get to know the statistical indicators and evaluation methods for passenger transport services.

Course content

- Demand models
- Principal of master plans
- Introduction and calculation of standardized evaluation of public transport infrastructure investments (Standi)
- Presentation of software tools for the optimization of operating concepts, route management and operating programs (PTV VISUM, PTV VISSIM, RailSys, timetable editing software FBS, Viriator, etc.)
- Presentation of bottleneck analyses with the above-mentioned software for future investments and their prioritization for the efficient use of investments

Duration
4 days

Target group
All

Course level
Fundamental Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

Rma5035

Principals of Bogie Technology

Learn about all aspects of the design, operation and maintenance of the bogie, the wheelsets and their components for metros, freight, commuter and high-speed trains.

Course content

The bogie is the connection of the vehicle with the rail and has the task of supporting, guiding, accelerating and braking the vehicle. Therefore, the safety requirements for bogies are extremely high and the design, the operation and the maintenance of bogies have a special importance.

In this course, you will see how a bogie is designed and you will learn which components are part of a bogie and how they interact. You will gain an overview of the different bogie designs for metro, freight, commuter and high-speed trains. In addition, the principals, advantages and disadvantages of tilting technology are explained. To monitor safety-critical components during operation, a high-speed train has different systems that you will learn about. Furthermore, you will get an impression of the different tests which a bogie has to pass before it is approved for installation in a train.

- Requirements for bogies
- Bogie and wheelset design
- Tilting technology
- Monitoring systems
- Testing
- Maintenance

Duration
4 days

Target group
Newcomers

Course level
Fundamental Training

Type of training
Online or Classroom

Methodology
Seminar

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Rmt2001

Principals of Metro System

Build up your know-how of the activities and equipment needed to guarantee the safety, the control and the monitoring of train and metro movements.

Course content

Railway and metro systems play a crucial role in daily transportation worldwide, moving millions of people around. Consequently, a key to success is understanding how the different operation systems function and where interdependencies lie. To be able to move railway and metro vehicles efficiently and safely it is important to know which equipment and activities are required to guarantee the safety, the control and the monitoring of train and metro movements, and which rules apply.

This course provides you with a comprehensive overview of the principals of railway and metro systems in terms of operations. You will get an insight into the operation of a heavy railway/metro system and the independences of the different systems. By examining various international examples, you will learn about the characteristics, elements and benefits of the components of rail and metro transport as well as expand your technical terminology.

- Differences between the different modes of operation
- Safety Management System of a Railway/Metro System: criteria and characteristics
- Rules & regulations, definitions and technical terminology
- Technical characteristics of rail and metro transport and typical market segments served by passenger rail systems
- Benefits of rail passenger transport systems
- Elements of a Rail System: tracks, stations, vehicles
- Organizational Frameworks: Integrated railway, infrastructure managers, train operating companies and contracting agencies
- Operation control centers, signaling of metro, intermittent and continuous train control
- Communication-based train control
- Overview of subsystems of train control function
- Dependencies between rolling stock, infrastructure components and signaling systems
- Benefits of rail systems for mobility, environment and spatial development

Duration
4 days

Target group
All

Course level
Fundamental Training

Type of training
Single

Methodology
Seminar

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Rmt1102

Risks and opportunities of setting up a mixed system (Railway & Metro)

Get an introduction to the fundamentals of railway and metro systems and learn about the risks and opportunities of setting up a mixing system.

Course content

- Fundamental differences between railway and metro systems.
- Advantages and disadvantages
- Regulations for railways systems - EBO (Eisenbahnbau- und Betriebsordnung) for railway and metro systems BOStrab (Bau- und Betriebsordnung für Straßenbahnen)
- Best practices of mixing systems according to EBO/BOStrab (Karlsruher Modell, Kassel Regiotram, Chemnitz, etc.)
- Risks and opportunities when setting up a mixing system (EBO and BOStrab)
- Experience of DB

Duration
2 days

Target group
All

Course level
Fundamental Training

Type of training
Online or Classroom

Methodology
Seminar

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Rmt5031

The Inner Workings of Metro Systems

This 4-week training provides you with eight interactive sessions of 90 minutes each (2 sessions per week), in which you will gain a comprehensive overview of the principals of railway and metro systems in terms of operations. The sessions will include presentations by our experts, discussions, breakout sessions, live polls and other methods that will help you to get an insight into the operation of a heavy railway/metro system and the interdependencies of the different systems.

Course content

Railway and metro systems play a crucial role in daily transportation worldwide, moving millions of people around. Consequently, a key to success is understanding how the different operation systems function and where interdependencies lie. To be able to move railway and metro vehicles efficiently and safely it is important to know which rules apply and which equipment and activities are required to guarantee the safety, the control and the monitoring of train and metro movements.

This training will allow you to deepen your knowledge of the features, elements, and benefits of the components of rail and metro transportation and expand your technical terminology.

- Week 1, Session 1: Rail and metro systems: safety, management rules and regulations
- Week 1, Session 2: Principals of rail and metro operations and train protection control systems
- Week 2, Session 3: Signaling principals & basics of metro infrastructure and rolling stock
- Week 2, Session 4: Organizational framework and metro station elements and interdependencies

Duration
8*90 Min over 4 Weeks

Target group
All

Course level
Fundamental Training

Type of training
Online or Classroom

Methodology
Seminar

Certification
Attendance Certificate

02

Rail Infrastructure

Rail infrastructure, one of the fundamental components of railway systems, refers to the physical network of tracks, stations, signaling systems, bridges, tunnels and other related structures that enable the operation of trains.

Due to its being an efficient and environmentally friendly mode of transport, rail transportation has recently seen a worldwide renaissance. Accordingly, many countries, including China, India and the member states of the European Union, have begun to allocate substantial funds to expand and modernize their infrastructure in the coming years[1]. The High-Speed Rail sector in particular has seen considerable growth in recent years. The EU has declared that it aims to triple High-Speed Rail traffic by 2050 in order to achieve the goal of climate neutrality[2]. According to a recent feasibility study by DB experts, this could mean expanding the European High-Speed Rail network by 32,000 kilometers until 2050.

Deutsche Bahn operates and maintains more than 33,000 km of railway tracks, over 5,000 passenger stations, as well as 25,000 bridges and 65,000 railway switches and crossings. This is not only the largest railway network in Europe, but also one of the largest in the world.

[1] Source: International Energy Agency: The Future of Rail. Opportunities for Energy and Environment, 2019, p. 71
[2] Source: European Commission: New Action Plan. Boosting Long-Distance and Cross-Border Passenger Rail, December 14, 2021

Back to all categories

COURSES

Rail Infrastructure

Basic ETCS - Signal-Guided Planning
Basic Training on ETCS
Bridge Design at DB
Bt1143 - Civil Engineering/Track Construction Company
Certification as Expert of Infrastructure
Communication Technologies in Railway Industry
Components of Rail Infrastructure & Maintenance
Components of Rail Infrastructure & Maintenance I
Components of Rail Infrastructure & Maintenance II
Cost in Railway Projects
Design – Statics for Overhead Lines
Design Review Overhead Contact Line Systems
ETCS Fundamentals
European Train Driver License
Exam Preparation: Railway Workers for Operational Service
Formal Acceptance
Fundamentals of Railway
Grounding of Railways
Infrastructure: Signaling
Infrastructure & Maintenance
Infrastructure: Design
Infrastructure: Fundamentals
Infrastructure: Inspection & Maintenance
Infrastructure: Installation & Acceptance
Infrastructure: Welding & Grinding
Interoperability of Overhead Contact Line Systems
Introduction to the System Railway and its Components
Life Cycle Management (LCM)
Maintaining Overhead Contact Line Systems
Maintenance of High-Performance Overhead Contact Line Systems
Maintenance of Rail Infrastructure
Maintenance of Standard Overhead Lines
Materials Management
Planning Overhead Contact Line Systems I
Planning Overhead Contact Line Systems II
Planning Overhead Contact Line Systems III
Principals of Electrical Engineering
Principals of Railway Electrification
Principals of Signaling in System Rail
Rail System Engineering Fundamentals I
Rail System Engineering Fundamentals II
Rail Systems
Rail Systems Engineering
Railroad Track Construction
Railway - Important Transport Mode
Railway Infrastructure and Defects Management
Specialist Area of Electrical Engineering
Station Management
Structural Analysis Guidelines
Study Tour: Infrastructure
Study Tour: Railway System – Advanced
Study Tour: Railway System – Fundamentals
Supply System of Electric Traction
The Railway System: Basic Concepts and Definitions
Train Driver Training

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Rin1009

Basic ETCS - Signal-Guided Planning

Acquire knowledge to implement the requirements set out in Directive 819.1348 in practice and work independently with the regulations, as a planner or plan auditor.

Course content

- Planning principals
- Structure of Directive 819.1348
- Planning rules according to guideline 819.1348
- Scheduling of documents that have to be created
- Structure of the plan documents: Data point table
- List of entries and exits etc.
- Planning example: Bhf Weil am Rhein
- Analysis of the planning after 819.1348 (as of 2017)
- Treatment of alternatives
- General procedure
- Current status and development of the guidelines

Duration
2 days

Target group
Newcomers

Course level
Fundamental Training

Type of training
Single

Methodology
Seminar

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Rin1010

Basic Training on ETCS

Get an introduction to ETCS with the option of tracking displays, detectors and functions directly on an electronic interlocking simulation system.

Course content

- The ETCS facilities and the functioning of ETCS
- ETCS-guided trains in regular operation - restrictions
- Train travel on ETCS lines in special operating situations, during work and disturbances

Duration
1 day

Target group
Newcomers

Course level
Fundamental Training

Type of training
Single

Methodology
Seminar

Certification
Attendance Certificate

Rin1042

Bridge Design at DB

Understand the basic principals and methods of bridge planning and construction at Deutsche Bahn.

Course content

- Frequent bridges: type of bridges, roller carrier in concrete, frame, thick plate, composite precast carrier, continuous beam structures
- Planning principals: method/processes based on HOAI, standard track clearance/emergency routes, short bridge, long bridges, obliqueness/skew, roadway/roadway crossings, rail tensions, extension length, rail expansion, loads according to EC, special charges in Germany
- Bearings: accessibility, fixed bearings, bearing exchange
- Special features design guidelines to EC
- Construction methods: provisional bridge, in elevated position, crosswise insertion, lifting in
- Inspection and maintenance: structures inspections, accessibility camp, slope stairs
- Recalculation of bridges: lecture railway bridge Stauffenberg
- Case study

Requirements

General knowledge in bridge planning & construction is required.

Duration
1 day

Target group
Specialists

Course level
Advanced Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Rin1043

Bt1143 - Civil Engineering/Track Construction Company

Learn about the construction and renewal of railway networks, as well as the professional use of tools and machines. Carry out the maintenance of track systems and points professionally.

Course content

- Acquisition of basic knowledge in occupational safety and environmental protection
- Learning how to use tools and machines professionally
- Acquisition of basic knowledge in the field of masonry, wood and road construction
- Finding out how tracks and points can be professionally maintained
- Obtaining the necessary knowledge for point assembly and track measurement

Requirements

Basically, no specific school or professional pre-education is required. For the training of civil engineers, the following skills are an advantage: spatial imagination, observation accuracy, reaction speed and manual skills.

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Voc1001

Certification as Expert of Infrastructure

Get familiar with the infrastructure (I + II) and the infrastructure of transport systems.

Course content

- The technical details of the rail infrastructure: track construction, construction & foundations, rails, ties, fasteners etc.
- Different maintenance strategies: usage, differences and similarities
- Control and safety systems for rail traffic: blocks
- Signaling in practice – failing of technology
- General information about energy supply by rail
- Handling common rail infrastructure deficiencies: details on repairs
- Deduction of further challenges in maintenance strategies
- Safety criteria and characteristics and advantages of rail passenger transport systems
- Technical characteristics of rail transports and typical market segments served by rail passenger transport systems
- Advantages of rail systems for mobility, environment and spatial development
- Organizational framework: integrated railways, infrastructure managers, train operators and contractors

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Rin1011

Communication Technologies in Railway Industry

Get an introduction to the communication technologies of the railway industry and an overview of the main types of communication systems.

Course content

- Overview of main types of communication systems and technologies in railway and metro systems
- Current trends in communication technology
- LTE application in the railway sector
- Interfacing problems
  - Approaches of solving and experience of DB (shutdown, amplification, etc.)
- Presentation of the problem of overlaying WLAN networks

Duration
4 days

Target group
All

Course level
Fundamental Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Rin1911

Components of Rail Infrastructure & Maintenance

Get to grips with technical details. Improve the quality and efficiency of operations and maintenance processes by building up your knowledge of the principals of rail systems and the dependencies of each component. Develop a deeper understanding of key issues about rail infrastructure and maintenance.

Course content

This course provides you with a comprehensive understanding of the principals of rail infrastructure. Looking at topics such as infrastructure components, maintenance principals and strategies, and common defects, this course leads to a comprehensive understanding of key topics concerning rail infrastructure and maintenance.

- Technical details of rail infrastructure
- Issues related to geometry
- The most common defects of rail infrastructure - examples and implications of Deutsche Bahn
- The principals of maintenance: terms, norms & standards
- Different maintenance strategies
- Handling of common defects of rail infrastructure: details on repairs
- Special track structures
- Deduction of further challenges of maintenance strategies

Duration
3 days

Target group
All

Course level
Fundamental Training

Type of training
Single

Methodology
Seminar

Certification
Attendance Certificate

Rin5011

Components of Rail Infrastructure and Maintenance I

Acquire a comprehensive understanding of the principals of rail infrastructure. Looking at topics such as infrastructure components, maintenance principals, and common defects of rail infrastructure, this course leads to an understanding of key topics concerning rail infrastructure and maintenance.

Course content

- Technical details of rail infrastructure
- Issues related to geometry
- The most common defects of rail infrastructure - examples and implications of Deutsche Bahn
- The principals of maintenance: terms, norms & standards

Duration
4 days

Target group
All

Course level
Fundamental Training

Type of training
Online or Classroom

Methodology
Seminar

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Rin6011

Components of Rail Infrastructure and Maintenance II

Get a comprehensive understanding of the principals of rail infrastructure. Focusing on topics such as different maintenance strategies and challenges, handling common defects, and consideration of special track structures, this course leads to an understanding of key topics concerning rail infrastructure and maintenance.

Course content

- Different maintenance strategies
- Handling of common defects of rail infrastructure: details on repairs
- Special track structures
- Deduction of further challenges of maintenance strategies

Duration
4 days

Target group
All

Course level
Fundamental Training

Type of training
Online or Classroom

Methodology
Seminar

Certification
Attendance Certificate

Rin5030

Cost in Railway Projects

Understand the analysis of railway investments, using an explicit methodology of economic valuation, for possible railway lines to be built or improved.

Course content

Accessibility (people's ability to reach desired activities) and mobility (physical movement) provide benefits to society, including direct benefits to users (people engaged in the transport activity) and external benefits. Most economic and social activities involve transport and some, such as a life-saving trip to a hospital or delivery of a valuable goods, have extremely large benefits. However, the existence of such benefits does not mean that all travel provides net benefits (benefits exceed costs) nor that increased mobility is necessarily desirable. Beyond an optimal level, additional mobility provides declining and eventually negative marginal benefits.

The economic evaluation of a railway transportation project aims to identify and quantify what is the contribution of that project to the welfare of society. In this course, the participants will see that the need for investments has to be evaluated by applying a cost-benefit analysis.

- Investment, maintenance and rehabilitation costs
- Costs in new infrastructures, in expansion of capacity, in rehabilitation or in improvements
- Operation costs
- Maintenance costs
- Evaluation criteria

Duration
2 days

Target group
All

Course level
Fundamental Training

Type of training
Online or Classroom

Methodology
Seminar

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Rin1012

Design – Statics for Overhead Contact Lines

Get an introduction into the interoperability characteristics of overhead contact line systems.

Course content

- Current calculation/computation programs for operating, using and analyzing/evaluating the calculation results
- For single-mast, heads pan and foundation calculations
- For concrete/steel/special masts
- With surface and/or underground foundations
- Cutting force determination
- Wind zones
- Pressure head

Duration
3 days

Target group
Newcomers

Course level
Fundamental Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Rin1013

Design Review Overhead Contact Line Systems

Get an introduction into the design review of overhead contact line systems.

Course content

- Standards and guidelines
- Documents - Design review of overhead line
- Documents - Design review of traction current lines
- Electric train operation signals
- Grounding - Inside and outside buildings/structures
- Safety measures for buildings/structures
- Component parts and requirements

Duration
3 days

Target group
Newcomers

Course level
Fundamental Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Rop5002

ETCS Fundamentals

The European Train Control System (ETCS) is a new common train protection system, which ensures increased safety and higher train frequency on the tracks.

Course content

A solid technical understanding of the European Rail Traffic Management System (ERTMS), particularly the European Train Control System (ETCS) is important for those working in maintenance, infrastructure, and operations to comprehend the interactions of the main components.

This training gives you an introduction to ERTMS/ETCS and you will learn about the most important vehicle and trackside components. It leads to you becoming familiar with the technical components of ETCS, taking into account the basics of ETCS levels and operations. This new and common train control system is not only known across Europe, but it is now also recognized worldwide and helps to ensure a higher level of safety and enhance capacity.

- Historical and general information about ERTMS/ETCS
- Command-control and signaling
- ETCS Levels and operating modes
- ETCS trackside components
- ETCS vehicle components
- Radio transmission and use of GSM-R communication
- ETCS operations

Duration
2 days

Target group
Newcomers

Course level
Fundamental Training

Type of training
Online or Classroom

Methodology
Seminar

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Voc1009

European Train Driver License

Get trained in all the essential modules for obtaining the European train driver's license. Learn about the organization and objectives of the company, the wheel-rail system, requirements for rail facilities, and basic activities of the train driver. Practical visits to rail facilities are carried out to reinforce the training content.

Course content

- Deutsche Bahn as a modern service company in competition – its tasks, objectives and "products"
- Specific tasks of the train driver
- Dangers of addictive substances on operational safety
- Structure of the legal and principals of transport (law/regulations/ guidelines)
- General overview of the rulebook
- The Wheel-Rail-System
- Railway station facilities
- Requirements for vehicles and trains
- Requirements for rail operations (railway construction and operation regulation)
- Regulations of occupational health and accident prevention
- Principals of signaling
- Task and facilities of train control systems
- Driver´s safety device as monitoring device of the serviceability of the train driver
- Basics for telephone and train radio connections respectively for remote data transmission
- Principals of the hot axle box detectors and fixed break detectors

Duration
10 days

Target group
Apprentices

Course level
Fundamental Training

Type of training
Program

Methodology
Seminar

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Rin1015

Exam Preparation: Railway Workers for Operational Service

Receive important information about the examination procedure and you will be optimally prepared for the final exam of “railway workers operational service”. Furthermore, an exam simulation helps you to prepare for and successfully master the written part of the final exam.

Course content

- Get to know the structure of the final exam
- Get valuable tips on what to look for
- Practice on practical tasks
- Clarification of individual questions
- Tips to deal with exam anxiety

Duration
4 days

Target group
Specialists

Course level
Advanced Training

Type of training
Single

Methodology
Seminar

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Rin1016

Formal Acceptance

Get an introduction into the formal acceptance of overhead contact line systems.

Course content

- Assessor: Qualifications and work aids
- Procedural sequence of the formal acceptance/Formal acceptance agreement and formal acceptance documents /National formal acceptance routines/Documents after the formal acceptance/Formal acceptance report and corresponding minutes
- Inspection and trial run and EC inspections - Certification of the power/energy subsystem
- Evaluation/analysis of measurement records of the contact wire position
- Contact force measurements, closing talk with system builder
- Tolerances and limiting dimensions in the overhead line/Agreement of the project documentation with the guideline requirements
- Checking/inspection of longitudinal span widths, catenary suspension drops, switch couplings
- Topics regarding national and Europe-wide formal acceptance routines, certifications of subsystems

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Rrf1001

Fundamentals of Railway

Learn about the key characteristics of rail systems and provide an overview of the dependencies between the various elements that make up a safe and efficient railroad. Detailed training modules will go into the specifics of rail service offerings, organizational frameworks, rail infrastructure and rolling stock, and rail operations and planning.

Course content

- History of the railway and high-speed development
- Safety criteria of a railway
- Characteristics and benefits of a passenger rail transportations system
- Integrated system rail
- Safety management systems (SMS), rules and regulations
- Stakeholders within a railway and their contribution to the success of a railway
- Block operation, train path protection
- Overview of the components and the subsystems of the train control function
- Signaling principals
- Basics of infrastructure
- Automated train Protection, GSM-R, Train Control Order Working
- Basics of rolling stock
- Preparation of a train ride
- Planning of a railway, capacity management and scheduling, overview
- Automation and future development
- Emergency management

Duration
5 days

Target group
All

Course level
Fundamental Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Rin1017

Grounding of Railways

Get an introduction into the railway grounding, motor backflow conductance, equipotential bonding and inner grounding of railways with single-phase alternating current.

Course content

- Feeding (auto and booster transformers)
- Principals of backflow conductance, railway grounding and equipotential bonding
- Responsibilities concerning railway grounding and motor backflow conductance
- Backflow conductance (cross-sections of connectors and return conductors)
- Railway grounding (for example: mast, slab track, bridges, for power system changes,
- Systems on platforms, sectioning points and coupler areas,
- Noise barriers, high-performance tracks, metal shields for 15 KV cable)
- Equipotential bonding (connections, electrical isolation, location-specific isolation)
- Checks/inspections
- Application examples
- Calculations/computations

Duration
3 days

Target group
Newcomers

Course level
Fundamental Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Rin1023

Infrastructure – Signaling

Understand the main elements of infrastructure and its relation to rail traffic to be able to deduce further challenges. Learn about the principal safety requirements in order to translate them into further challenges.

Course content

- German Railway history – Operate trains before inventing signaling
- Systems of control and safety for railway traffics
- Technical realization of rail traffics
- Signaling in practice – failing of technology
- Analyzation and creation (possible trouble spots and potential secondary safeguarding levels)
- How is geographic interlocking operated?
- General core elements of the safety and control principals of signaling
- Systems of signaling considering the local safety requirements of rail traffic
- Transferring the theory of signal box technology to further challenges and its implications

Duration
4 days

Target group
Newcomers

Course level
Fundamental Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Rin1022

Infrastructure & Maintenance

Get a comprehensive understanding of the principals of rail systems and the interconnection of each component for efficient and safe rail operation. Gain deeper understanding of key topics in the area of rolling stock and vehicle construction, the infrastructure and its elements, the operation and its concepts.

Course content

- Safety criteria, characteristics and benefits of rail passenger transportation systems
- Technical characteristics of rail transport and typical market segments served by rail passenger transport systems
- Advantages of rail systems for mobility, environment and spatial development
- Rules and regulations, definitions and technical terminology
- Operation control, centers and signaling
- Overview of components and subsystems of train control functions
- Dependencies between rolling stock, infrastructure components and signaling systems
- Basic elements of rolling stock, infrastructure and safety
- Challenges and implications of signal box technology
- Operation and communication systems
- Planning approaches and railroad planning process
- Signaling and operations; principals and methodologies
- Capacity management and service planning market/demand analysis
- Emergency management; automation and future development

Duration
5 days

Target group
Specialists & Executives

Course level
Advanced Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Rin1018

Infrastructure: Design

Get an introduction to the design of the infrastructure and its track systems.

Course content

- Main design criteria for design of track
- Ballast superstructure and ballastless track systems
- Trackwork on embankment, in tunnel and on bridges
- Standard track
- Turnouts
- Rail Expansion Joint s (REJ)

Duration
4 days

Target group
All

Course level
Fundamental Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Rin1019

Infrastructure: Fundamentals

Get an overview of the basics of the infrastructure.

Course content

- The technical details of rail infrastructure
  - Track construction, structure and foundation, rails, ties, fastening, etc.
- Details of switches and junctions
  - Tasks of switches &
  - Junctions
  - Switch components
  - Different types of
  - Switches
  - Level crossing
- Basics of construction engineering
  - Tunnel
  - Tunneling
  - Bridges
  - Bridge building
- Asset management for infrastructure as a part of organizational goals
- ISO 55001 with link to customers' AM policy, AM strategy and AM objectives

Duration
4 days

Target group
Newcomers

Course level
Fundamental Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Rin1020

Infrastructure: Inspection & Maintenance

Get an introduction to infrastructure maintenance and its basics as well as different maintenance strategies. Rail-related infrastructure covers all the structures, buildings, land and equipment to support railways, however, the focus here lies on track inspection and maintenance. Learn what needs to be considered right from the start regarding asset management in relation to maintenance to make the correct decisions for your rail system.

Course content

- General maintenance parameters
- Track maintenance
- Maintenance disciplines
- Maintenance vehicle
- Asset Management for maintenance
- Digital maintenance solutions
- Maintenance side impacts

Duration
4 days

Target group
All

Course level
Fundamental Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Rin1021

Infrastructure: Installation & Acceptance

Get an introduction to the installation and acceptance of infrastructures.

Course content

- Technical details for trackwork, turnouts and Rail Expansion Joint s
- Manufacturing, transport, storage, installation of track components, turnouts and Rail Expansion Joint s (REJ)
- Testing and commissioning
- Inspections & Test Plan (ITP)
- Tolerances

Duration
4 days

Target group
All

Course level
Fundamental Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Rin1024

Infrastructure: Welding & Grinding

Get an introduction to the fundamentals of welding and grinding.

Course content

- Welding technologies for track, turnouts and Rail Expansion Joint (REJ)
- Principals of Continuous Welded Rails (CWR) and Rail Neutral Temperature
- Grinding principals and methods
- Correction of rail surface failures

Duration
4 days

Target group
All

Course level
Fundamental Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

Rin1025

Interoperability of Overhead Contact Line Systems

Get an introduction into the interoperability characteristics of overhead contact line systems.

Course content

- Technical specification for interoperability, power/energy subsystem
- History, contents and head/pan profiles
- Dynamic interaction between contact wire and pantograph
- Contact wire height, inclination angles and changes in inclination angle
- Usable - maximum lateral position of contact wire
- Wind loads for fitness-for-purpose and proof-of-strength verification
- Overhead line interoperability component
- Booklet for checking and verifying the route

Duration
3 days

Target group
Newcomers

Course level
Fundamental Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Rrf1002

Introduction to the System Railway and its Components

Get an overview of the essential components of the rail system and their interaction. Deepen your knowledge with lectures and discussions.

Course content

- Components of the railway system
- Historical development of the railway
- Basic train operation
- Overview of track management
- Overview of rail vehicles and their maintenance
- Infrastructure I & II

Duration
4 days

Target group
Newcomers

Course level
Fundamental Training

Type of training
Single

Methodology
Seminar

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Rin1040

Life Cycle Management (LCM)

Learn how to manage processes and systems over their entire life cycle in order to tap new value creation potential, exploit synergies and avoid risks.

Course content

- Life Cycle Management: Overall context in a railway company with best-practice of DB Group
- Essential phases, processes and result types in lifecycle management
- Overarching methodological framework (CobiT, ITIL, CMMI, TOGAF, etc.)
- Reference to standard processes and procedure models with best-practice of the DB
- Holistic view of lifecycle management
- Transition from development to operation
- Consideration of the operating phases: Introduction, growth, saturation, decline and replacement
- Development of new value creation potentials through comprehensive consideration of
- Impulses for innovation management

Duration
2 days

Target group
Newcomers & Executives

Course level
Fundamental Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Rin1026

Maintaining Overhead Contact Line Systems

Get an introduction into the further training for maintaining overhead contact line systems.

Course content

- Technical specifications for interoperability
- New/updated standards and guidelines
- New/updated EBS drawings and technical change descriptions
- New/updated applications in overhead lines maintained and operated by Deutsche Bahn and other
- Infrastructure managers
- Evaluations of malfunctions and faults, and avoiding them
- Topics regarding international maintenance projects

Duration
3 days

Target group
Newcomers

Course level
Fundamental Training

Type of training
Single

Methodology
Seminar

Certification
Attendance Certificate

Rin1027

Maintenance of High-Performance Overhead Contact Line Systems

Get an introduction into the maintenance of high-performance overhead line systems.

Course content

- Standards and guidelines for maintaining overhead contact line systems
- Setting up/installing, operating, formally accepting
- Maintenance, servicing, inspecting, repairing and maintenance concept in accordance with guideline 997.0104
- Objectives, responsibilities and deadlines surrounding maintenance work
- Tolerances and limiting dimensions/Safety and railway operations
- Working at height and in the direct vicinity of/on overhead contact line systems
- Operative status and functional checks, complete inspections and unscheduled tests/inspections
- Procedure to follow for faults and malfunctions/Repairing a crack in a messenger wire or contact wire/Temporary hangars, auxiliary mast
- Replacing a section of contact wire, a complete contact wire length, a boom or a section insulator
- Anti-corrosion protection and categories of faults and malfunctions

Duration
3 days

Target group
Newcomers

Course level
Fundamental Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

Rma1095

Maintenance of Rail Infrastructure

Understand the key elements and interactions of rail infrastructure and maintenance principals, and be able to derive further challenges.

Course content

- Technical details of rail infrastructure
- The most common defects of rail infrastructure (examples and implications of Deutsche Bahn)
- The principals of maintenance: terms, norms & standards
- Different maintenance strategies
- Integration of the excursion experiences with the theory
- Handling with common defects of rail infrastructure: details on repairs
- Deduction of further challenges of maintenance strategies

Duration
5 days

Target group
Newcomers & Executives

Course level
Fundamental Training

Type of training
Single

Methodology
Seminar

Certification
Attendance Certificate

Rin1029

Maintenance of Standard Overhead Lines

Get an introduction into the maintenance of standard overhead lines.

Course content

- Standards and guidelines for maintaining overhead contact line systems
- Setting up/installing, operating, formally accepting
- Maintenance, servicing, inspecting, repairing and maintenance concept in accordance with guideline 997.0104
- Objectives, responsibilities and deadlines surrounding maintenance work
- Tolerances and limiting dimensions/Safety and railway operations
- Working at height and in the direct vicinity of/on overhead contact line systems
- Operative status and functional checks, complete inspections and unscheduled tests/inspections
- Procedure to follow for faults and malfunctions/Repairing a crack in a messenger wire or contact wire/Temporary hangars, auxiliary mast
- Replacing a section of contact wire, a complete contact wire length, a boom or a section insulator
- Anti-corrosion protection and categories of faults and malfunctions

Duration
3 days

Target group
Newcomers

Course level
Fundamental Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

Rin1030

Materials Management

Get to know the process basics, material requirements planning and reporting, Obsolescence Management (OM) as a supporting activity. Get an introduction into planning, managing and optimizing material stocks and workloads, and an overview of basic material management processes.

Course content

- Processes as the foundations for efficient materials sourcing and management maintenance depots
- Materials requirement planning (IS 030/Rev i.e.W.) that takes key parameters into account, e.g. maintenance instructions (IW-P), type alteration notification (BÄM), OM and from the forecast procedure
  - Drafting materials requirement plans (quantities and budgeting basics in medium term)
  - Monthly update of quantity forecasts
- Excerpts from materials management reports
- OM: support and communication functions
- Involvement in:
  - Creating maintenance regulations (IW-P and SoA)
  - Initial and final stock formation for maintenance materials in cooperation with central procurement and vehicle management

Duration
3 days

Target group
Newcomers

Course level
Fundamental Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Rin1031

Planning Overhead Contact Line Systems I

Get an introduction into the catenary system and get to know how to plan the overhead contact line system.

Course content

- Energy/power supply, railway power supply systems and railway power supply in Germany/the catenary system and general design and structure
- Requirements and specifications and operative interaction between pantograph and overhead line
- Project planning for catenaries and documentation, EBS drawings/Symbols/icons and their meaning (what they stand for)
- Blow-off, catenary suspension underneath buildings/structures
- Switch couplings, interfaces to other systems/Track construction, bridges and bridge transition points
- Signaling equipment and local control equipment

Duration
3 days

Target group
Newcomers

Course level
Fundamental Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

Rin1032

Planning Overhead Contact Line Systems II

Get a review of introduction into the catenary system and get to know how to plan the overhead contact line system.

Course content

- Review important basic knowledge/information
- Coupling of constraint points, switches, switch connections
- Catenary suspension drops and raises/Sectioning, signals and signal view
- Determination of longitudinal span widths in straight-line and curved sections
- Lateral displacement of contact wire on the pantograph, lateral tensile forces, determination of tension length
- Distance/gap verification, traction current lines
- Overhead lines for buildings/structures, protective measures and against direct and indirect contact
- Electric train operation signals, meaning/significance and arrangement of the signals
- Backflow conductance
- Railway tracks and earth/ground and return conductors, feeders

Requirements

This training requires basic knowledge as a prerequisite.

Duration
3 days

Target group
Specialists

Course level
Advanced Training

Type of training
Single

Methodology
Seminar

Certification
Attendance Certificate

Rin1033

Planning Overhead Contact Line Systems III

Get a review of introduction into the catenary system and get to know how to plan the overhead contact line system.

Course content

- Review important basic knowledge/information
- Tolerances, limit values and provisioning values
- Calculation/computation of the wind load in accordance with Deutsche Bahn specifications and European standards
- Influence of tolerances/wind loads on the longitudinal span width
- Tangential switch couplings with and without auxiliary catenary suspension
- Special-purpose solutions for catenary suspension drops
- Calculation/computation of bondings (installation location and length)
- Traction current lines
- Formal verification against excavation
- Return forces

Requirements

This training requires basic knowledge as a prerequisite.

Duration
3 days

Target group
Specialists

Course level
Advanced Training

Type of training
Single

Methodology
Seminar

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Rin1034

Principals of Electrical Engineering

Understand the principals of railway power generation and distribution and the requirements of overhead catenary systems. Address the awareness for safety in electrical systems.

Course content

- Information about traction power supply and energy systems
- Central/decentralized rail power supply
- Advantages/disadvantages of the energy systems
- Supply of the overhead catenary/Power supply areas
- Ril 9970301
- Consideration of all properties and materials for the correct dimensioning of the overhead catenary
- Construction and components of the overhead catenary line systems
- Terms, construction methods, components, laws & regulations
- Safe work (DIN VDE)
- Electrical systems for rescue workers
- Reflection on the system of electrical engineering and deduce further challenges

Duration
4 days

Target group
Newcomers & Executives

Course level
Fundamental Training

Type of training
Single

Methodology
Seminar

Certification
Attendance Certificate

Rin2003

Principals of Railway Electrification

Compare the special advantages and disadvantages of Direct Current (DC) systems with Alternating Current (AC) systems according to power supply, type and interconnection of the contact line, return line, earthing and grounding systems, protection measurements and electro-magnetic influences.

Course content

- Railway electrification: importance of rail electrification worldwide and advantages of electrification
- Systems of traction power supply
- Systems of contact lines
- Overhead contact lines
- Return line, earthing and grounding
- Railway electrification and interfaces
- Maintenance of overhead contact line

Duration
3 days

Target group
Newcomers

Course level
Fundamental Training

Type of training
Single

Methodology
Seminar

Certification
Attendance Certificate

Rin5010

Principals of Signaling in System Rail

Understand principal signaling infrastructure elements and their relation to rail traffic to improve signaling quality, efficiency and safety.

Course content

It is important for rail operations to safeguard against signal failure and ensure that principal safety requirements are met. This helps to ensure that a rail system is safe, reliable and predictable.

This training provides you with an overview of systems of control and safety systems for railway traffic to ensure efficient and safe rail operations. It looks at how systems of signaling work in practice and how technology can fail, leading to a deeper understanding of possible trouble spots and the implications for meeting safety requirements. By analyzing a variety of scenarios under expert guidance, you will be able to deduce where challenges lie and create potential secondary safeguarding levels.

- German railway history – Operation of trains before the invention of signaling
- Signaling in practice – failing of technology
- Analyzation and creation (possible trouble spots and potential secondary safeguarding levels)
- How is geographic interlocking operated?
- General core elements of the safety and control principals of signaling
- Systems of signaling considering the local safety requirements of rail traffic
- Transferring the theory of signal box technology to further challenges and its implications

Duration
4 days

Target group
Newcomers

Course level
Fundamental Training

Type of training
Online or Classroom

Methodology
Seminar

Certification
Attendance Certificate

Rrf5002

Rail System Engineering Fundamentals I

Learn about the concept of integration of rail systems looking closely at the components, factors and interfaces involved. Look at the development of concepts before looking more closely at the interfaces between systems engineering components and systems integration.

Course content

- Development of system concepts
- Interfaces between systems engineering components and systems integration
- Interactions between (sub)-systems and between systems and their environments
- Systems design process

Duration
4 days

Target group
Newcomers

Course level
Fundamental Training

Type of training
Online or Classroom

Methodology
Seminar

Certification
Attendance Certificate

Rrf6002

Rail System Engineering Fundamentals II

Learn about the concept of integration of rail systems looking closely at the components, factors and interfaces involved. In particular, focus on human factors and critically analyze and evaluate their impacts on system performance. Learn more about reliability engineering.

Course content

- Human Factors in systems, human capacity, human beings and machine roles in complex systems and system integration
- Evaluation of the impact of human performance on system performance
- Reliability engineering
- Systems engineering tools

Duration
4 days

Target group
Newcomers

Course level
Fundamental Training

Type of training
Online or Classroom

Methodology
Seminar

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Rin1035

Rail Systems

Learn the fundamental concepts of rail systems.

Course content

- Development of concepts
- Interfaces between systems engineering components and systems integration
- Interactions between (sub) - systems and between systems and their environments
- Systems design process
- Human Factors in systems, human capacity, human beings and machine roles in complex systems and system integration
- Evaluation of the impact of human behavior on system performance
- Reliability engineering
- Systems engineering tools

Duration
5 days

Target group
Newcomers

Course level
Fundamental Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

Rin1036

Rail Systems Engineering

Understand the principals of engineering by becoming familiar with developing systems engineering concepts.

Course content

- Development of the concept of Systems Engineering and Integration and related philosophies
- Overview of the system engineering process
- Concept phase and practical guide for concepts
- Interface between systems engineering components, interfaces and systems integration
- System design as a process
- Developing a concept of a rail system
- Interactions between (sub) - systems and between systems and their environments
- Risk analysis
- System design process
- Identifying and managing maintenance activities and their principals and different strategies
- Ensuring compliance with interoperability requirements
- The most common defects of rail infrastructure
- Requirements, verification and validation of system engineering tools

Duration
4 days

Target group
Newcomers

Course level
Fundamental Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

Rin5029

Railroad Track Construction

Examine and learn about the different techniques of maintenance, renovation and construction of railways.

Course content

Maintenance is essential during the track cycle of the railway. It is important to keep the railway in acceptable conditions for an effective and efficient operation. However, when normal maintenance is not possible, for example, as a result of aging, or when the requirements of the rail traffic are incompatible with the conditions of an existing, functioning railroad, the track must be renewed.

In this course, the different techniques of maintenance, renovation and construction of railways will be examined and explained. It is important that the construction and maintenance of railways goes hand in hand with the management of the circulation of vehicles and the safety of the railway infrastructure. By analyzing international case studies, you will deepen your know-how in this area and become aware of the interdependencies. This, in turn, will help you improve your technical work related to the construction and maintenance of railways.

- Degradation of track geometry and components
- Life cycle cost
- Maintenance
- Track installation
- Renewal of track
- Methodologies and machines

Duration
3 days

Target group
All

Course level
Fundamental Training

Type of training
Online or Classroom

Methodology
Seminar

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Rrf1004

Railway - Important Transport Mode

Get an overview of how important future rail projects are for the evolvement of countries or regions.

Course content

- Introduction
- Railway feasibility/possibility of establishing railway in D&E countries (main factors that contribute to create a high-speed rail)
- Costing methodology for the project
- Cost benefits of railway/transport projects and service funding methods
- Forecast of the requirements methodology for the future railway project
- The economics behind the rail project

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Rin5024

Railway Infrastructure & Defects Management

Receive an overview of the basics of the infrastructure components. Furthermore, gain insight into infrastructure maintenance and defect management.

Course content

- Railway infrastructure components
- Ageing of railway infrastructure
- Infrastructure and maintenance strategies with focus on metro projects
- Reliability and management of railway infrastructure defects

Duration
2 days

Target group
All

Course level
Fundamental Training

Type of training
Online or Classroom

Methodology
Seminar

Certification
Attendance Certificate

Rin1037

Specialist Area of Electrical Engineering

Get to know the system officer in accordance with FA 046.2705 for working in the vicinity of overhead contact line systems.

Course content

- Design and core component parts of the overhead line
- Dangers/hazards associated with electric train operation and general plan with switching/wiring instructions
- Necessity of railway grounding and backflow conductance and the railway grounding system
- The 5 safety rules
- Protective measures to implement when using or working with construction machinery
- Responsibility, operative tasks and responsibilities when working in the vicinity of overhead contact line systems
- Prerequisites for granting approval
- Energizing/applying power in accordance with completing work

Duration
3 days

Target group
Specialists

Course level
Advanced Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Rin1041

Station Management

Get an overview of the different types of stations. The management approach tries to optimize the passenger flow and the customer relationship by designing an ideal station, even in emergency situations.

Course content

- Stations as the point of mobility: type of stations and classifications
- KPI´s, capacity planning, safety and security (emergency concepts) and retail management
- Save and quick passenger flows
- Care of food, drinks, news and basics
- Preservation, maintenance and future planning

Duration
1 day

Target group
Newcomers & Specialists

Course level
Fundamental Training

Type of training
Single

Methodology
Seminar

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Rin1038

Structural Analysis Guidelines

Get an introduction into the fundamentals of structural analysis guidelines.

Course content

- Main support systems for overhead contact line systems
- Rules/regulations
- Load assumptions
- Calculation/computation example - Boom
- Calculation/computation example - Mast
- Soil investigation
- Foundations
- Application examples of structures in practice
- Assessment of damage to structures in practice

Duration
3 days

Target group
Newcomers

Course level
Fundamental Training

Type of training
Single

Methodology
Seminar

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Rin1039

Study Tour: Infrastructure

Receive an overview of the infrastructure system. You will be guided to 5 construction site visits, 2 knowledge events and the capital of Germany.

Course content

- DB's experience about the railway system: Infrastructure
- Practical visit and guided tour of Berlin Central Station: 'A look behind the scenes'
- Practical visit and guided tour of the Operational Control Center, Pankow
- Practical visit and guided tour through DB Switch training field
- Practical visit and guided tour through DB HSR Maintenance Workshop, Rummelsburg
- Practical visit and guided tour through DB Training and Train Controller Training facility and workshop

Requirements

Participants' international flights and/or other travel expenses to the point of arrival and departure will not be reimbursed.

Duration
4 days

Target group
All

Course level
Fundamental Training

Type of training
Study Tour

Methodology
Seminar

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Rrf1007

Study Tour: Railway System – Advanced

Receive an overview of the railway system. You will be guided to 6 construction site visits, 2 knowledge events and 4 cities of Germany.

Course content

- DB's experience about the railway system: As it is and as it will be [Frankfurt]
- Practical visit and guided tour through HSR Light Maintenance Workshop [Frankfurt]
- Guided tour through the oldest railway museum in the world [Nuremberg]
- Practical visit and guided tour through DB Maintenance and redesign workshop for automated driverless metro vehicles [Nuremberg]
- Practical visit and guided tour through Berlin Central Station: 'Look behind the scenes' [Berlin]
- Practical visit and guided tour through Operational Control Center [Berlin]
- Practical visit and guided tour through DB Hamburg-Maschen marshalling yard – the biggest marshaling yard in Europe [Hamburg]

Requirements

Participants' international flights and/or other travel expenses to the point of arrival and departure will not be reimbursed.

Duration
4 days

Target group
All

Course level
Advanced Training

Type of training
Study Tour

Methodology
Seminar

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Rrf1006

Study Tour: Railway System – Fundamentals

Receive an overview of the fundamental railway system. You will be guided to 6 construction site visits, 2 knowledge events and 3 cities of Germany.

Course content

- DB's experience about the railway system: Overview [Cologne]
- Practical visit and guided tour through Cologne Central Station: 'A look behind the scenes' [Cologne]
- Practical visit and guided tour of the Operational Control Center [Duisburg]
- Practical visit and guided tour through DB tracks and switches training field [Duisburg]
- Practical visit and guided tour through DB HSR Heavy Maintenance Workshop [Krefeld]
- Practical visit and guided tour through most modern DB HSR Maintenance Workshop Cologne-Nippes [Cologne]
  - First CO2-free workshop
- Practical visit and guided tour through DB Training simulator facility [Cologne]

Requirements

Participants' international flights and/or other travel expenses to the point of arrival and departure will not be reimbursed.

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Rin5023

Supply System of Electric Traction

Understand the concept of electric traction and why it is so important for a successful railway business. Get a comprehensive overview of electric traction systems in railways and highlights their benefits.

Course content

- DC/AC traction system
- Metro rail electrical system
- Key features of the electrical system
- Selection of traction voltage
- Overhead catenary systems (OCS)/Third rail systems
- Reliability and redundancy measures
- Earthing system

Duration
1 day

Target group
Newcomers & Executives

Course level
Fundamental Training

Type of training
Online or Classroom

Methodology
Seminar

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Rin5021

The Railway System: Concepts and Definitions

Get an initial overview of the concept of rail transport and enable identification of the purpose, components and functions of the railway as a system.

Course content

Railway systems consist of much more than a train and a track. They are based on advanced technical and operational solutions, and deal with continuously changing demands for more efficient transport for both passengers and freight every day. Each system consists of many components that must be properly integrated to ensure everything runs smoothly.

In this course, you will learn how the system components depend on each other to create a reliable, efficient and state-of-the-art network. You will acquire knowledge regarding the analysis, planning, development, design, construction and maintenance of the railway infrastructure to achieve a safe and efficient operation of the same.

- The railway as a system
- Basic components of tracks: sleepers, fastening systems, ballast, platform, switches, Long Welded Rail (LWR), joints, etc.
- Railway vehicles and their interdependencies: Rolling stock, locomotives, freight cars, passenger cars, self-propelled formations
- Track/vehicle interaction: shape, gauge, rail inclination and gradation
- Stations, signaling and control systems, monitoring, maintenance

Duration
3 days

Target group
Newcomers & Executives

Course level
Fundamental Training

Type of training
Online or Classroom

Methodology
Seminar

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Voc1008

Train Driver Training

Learn the theory and practical skills to become a train driver.

Course content

1. Basics (rail operations)
2. Basis of railway techniques
3. Examination (license)
4. Operational rules (normal operation)
5. Simulator (normal operation)
6. Operational rules (irregularities)
7. Simulator (irregularities)
8. Car inspection, brake handling
9. Vehicle technique
10. Conduct modules
11. Driving
12. Exam preparation
13. Simulator (preparation)
14. Examination (supplementary certificate)

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03

Rail Operations & Maintenance

Keeping timetables and ensuring railway operations run smoothly are key objectives for rail operators as these factors directly affect customer satisfaction. Maintenance is a key issue here: Trains require special facilities for storage and maintenance, and regular inspections help to identify and eliminate potential safety hazards. By keeping the infrastructure and rolling stock in good condition, the risk of accidents, derailments, and other incidents can be significantly reduced – which, in turn, helps improve reliability and efficiency.

Deutsche Bahn's maintenance practices adhere to the highest standards to ensure safety, reliability, efficiency, cost-effectiveness and customer satisfaction. Our vehicles are maintained by highly experienced staff at our state-of-the-art maintenance facilities, some of which are even climate neutral. There, we focus not only on general inspections and accident repairs, but also on predictive maintenance.

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Back to all categories

COURSES

Rail Operations & Maintenance

Automated Train Operation
Description of Conditioned-Based Maintenance
Electro Mechanic Systems & Maintenance
Electronic Interlocking Basics
ETCS: Adaption Training for Dispatcher
ETCS: Interlocking Operation
External and Internal Maintenance Guidelines
Fundamentals of Rail Operation
General Overview of the Railway
Key Components: Maintenance Depths of Each Component
Maintenance Information System
Maintenance Regulations
Maintenance Workshops Planning. Staffing. Centralization and Decentralization of Processes.
Optimizing Maintenance
Principals of Railway Operation
Principals of Railway Operation I
Principals of Railway Operation II
Rail Operations & Strategic Management
Road Map to Timetable – From Green Field to Operation
Successful with Railway RAMS
Technical Maintenance Training (Overhead Contact Line Systems)
Ticketing and Collection System Management
Transport Capacity Modeling
Transport Capacity Modeling & Maintenance Parameters
Vehicle Management Procedure System
Viriato Basic Training
Wheel Set Refurbishment

Rop2004

Automated Train Operation

ATO (Automatic Train Operation) and DTO (Driverless Train Operation) are key elements for improving energy efficiency and increasing line capacity in the railway sector.

Course content

ATO (automatic train operation) has already been in use for quite a while in railway systems worldwide. One of its main goals is to improve the frequency of service. ATO is continuously being developed and also enables trains to be operated without a driver in the cab (DTO: driverless train operation). Both ATO and DTO help to improve energy efficiency and increase line capacity in the railway sector.

This course enables you to gain a good overview and deep insight into the different ATO/DTO systems that have already been implemented internationally by analyzing and evaluating a large number of projects already in operation. Besides learning the advantages and disadvantages of different ATO/DTO systems and how to categorize them, you will get to know the international activities in this field and can take advantage of them for your own activities in this sector.

- Definition and main principals of ATO and DTO
- Overview of different ATO/DTO systems and grades of automation
- Advantages and disadvantages of different ATO/DTO systems
- Risks and opportunities in automatic and driverless train operation
- International case studies

Duration
1 day

Target group
All

Course level
Fundamental Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Rma1092

Description of Conditioned-Based Maintenance

Get familiar with the further development of CBM-based maintenance and get an introduction into technical approaches, processes deployed and look ahead.

Course content

- Starting point and fields of use
  - Maintenance strategies – corrective, preventative and (prospectively) condition-based
  - Integrated maintenance system (IMS)
  - Where CBM is applied in the rail sector, description of 4-quadrant system with 1 example for each quadrant
  - Current state of technology and deployment at DB
- Identifying and developing requirements re. subsystems and components in line with operational and maintenance-related needs
  - Goal definition, data selection and knowledge loop
  - Process model for monitoring condition, collecting and analyzing data, forecasting faults
  - Approaches, methods, analyses and tools
  - Assessing data and recognizing patterns
  - Thresholds for intervention, framework conditions
- Results of DB' studies "Generic condition-based maintenance" and "Cassantec", from DB DVS (digital vehicle solutions: DB Systel and DB Systemtechnik) and predictive analytics

Duration
2 days

Target group
Executives

Course level
Advanced Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Rin1014

Electro Mechanic Systems & Maintenance

Get an introduction to the electromechanical systems and their maintenance and gain an overview of personnel planning and the outsourcing of functions.

Course content

- Presentation of personnel planning depending on the technology used
- Make or buy decision with regards to electro mechanics functions and staff
- Procedures of supervision
  - Filling the supervisory position, including requirements for personnel skills and assessment criteria
- Approaches to improve the maintenance of the AFC, platform screen doors, escalators, power lighting, FAS, BAS, ventilation and air conditioning, irrigation and drainage systems, fire water systems, power supply systems

Duration
4 days

Target group
All

Course level
Fundamental Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

Rop1045

Electronic Interlocking Basics

Learn about how to operate an electronic interlock. This seminar thus serves the optimal preparation for the final exam and the later practical use (see in-house training plan). After the seminar, confidently operate an electronic interlocking.

Course content

- Function and operation of the ETCS system
- Electronic interlocking facilities
- Operating and display devices
- Train and marshalling roads
- Irregularities and disturbances
- Block traces
- Blocking of journeys
- Driving on the opposite track
- Facilities of an electronic interlocking
- Operating and display devices
- Irregularities and disturbances

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Rop1047

ETCS: Adaptation Training for Dispatcher

Learn about the ETCS regulations according to the adaptation training “European Train Control System (ETCS) for Dispatchers”.

Course content

- Facilities and functioning of ETCS
- ETCS-guided trains in regular operation
- Train operations on ETCS lines in special operating situations, during operations and disturbances
- Use of the ETCS operating device

Duration
2 days

Target group
Specialists

Course level
Advanced Training

Type of training
Single

Methodology
Seminar

Certification
Attendance Certificate

Rop1048

ETCS: Interlocking Operation

As electronic interlocking trainee, learn about deviations in this seminar. For reasons of clarity, the essential operating actions and operating functions are explained on the basis of the mechanical interlocking. Thus, you will be optimally prepared for the later seminars and the subsequent use on the signal box.

Course content

- Train movements without driving position of a main signal
- Disturbance at the block of tracks
- Carrying out train journeys for special features and irregularities
- Track inspection, route safety
- Entries in the work and troubleshooting book
- Track possessions
- Implementation of barrier triggers
- Measures when working in accordance with Betra o. BA
- Journeys with auxiliary trains

Requirements

This training requires basic knowledge as a prerequisite.

Duration
9 days

Target group
Specialists

Course level
Advanced Training

Type of training
Single

Methodology
Seminar

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Rma1093

External and Internal Maintenance Guidelines

Get an introduction into the external and internal maintenance guidelines and an overview of relevant standards (DIN/EN/ISO) and get to know the relevant excerpts from applicable EU directives & regulations.

Course content

- Legal maintenance provisions
  - General Railway Act (AEG)
  - German Railway Construction and Operating Regulations (EBO)
- Government regulations (international regulations) and their interpretation
  - EU regulations (European Union)
  - EN standards (European standards)
  - EG directives, e.g. TSI (technical specification for interoperability)
- National regulations
  - DIN standards (national standards) e.g. DIN 27201
- Internal maintenance guidelines
  - GLs (guidelines), MMs (maintenance manuals)
- Manufacturers' documents
  - Sets of drawings, maintenance instructions, vehicle descriptions

Requirements

This training requires basic knowledge as a prerequisite.

Duration
2 days

Target group
Specialists & Executives

Course level
Advanced Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

Rop1049

Fundamentals of Rail Operation

Get to know the basics of railway operations. They acquire knowledge about the principals of railway operations.

Course content

- Facts and highlights from history
- The railway today and in the future
- The coordinated railway system
- Legal foundations for railway operations
- Rules for constructing and operating the railway
- General terms and expressions in railway business
- Requirements for train operation
- Operational concepts and principals
- Network calculation
- Different types of railway operation systems

Duration
3 days

Target group
Newcomers

Course level
Fundamental Training

Type of training
Single

Methodology
Seminar

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Rrf1104

General Overview of the Railway

Learn about the key characteristics of rail systems and get an overview of the interdependencies between the various elements that make up a safe and efficient railway.

Course content

This training course offers a comprehensive introduction to railway systems. Thus, participants will gain a solid understanding of the main characteristics of rail systems and learn about the roles and processes that form the backbone of a successful railway system.

- Introduction to railway
- Roles within a railway
- Preparation of a train ride
- Block operation, train path protection
- Components and subsystems
- Signaling principals
- Automated train protection
- Train control order working
- Planning of a railway
- Railway capacity and control
- Design of railway operation

Duration
3 days

Target group
Newcomers & Executives

Course level
Fundamental Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Rma1058

Key Components: Maintenance Depths of Each Component

Get an overview of the various maintenance measures for the individual components and learn the maintenance depths and work steps that contributes to a successful component maintenance.

Course content

- Maintenance measures, maintenance levels in connection with maintenance depths
- Explanation of work steps of each maintenance level (work instructions) in connection with the maintenance depth
- Cooperation with manufacturers of individual components and devices and assemblies (several devices together)
- Spare parts procurement (delivery times, internal storage and provision of spare parts, etc.) at Deutsche Bahn
- Obsolescence management and asset management
- Warranty claims against manufacturers and recourse claims (downtimes)
- IGBT maintenance and errors. (IGBT=Insulated-gate bipolar transistor)
- Measures to avoid/reduce IGBT damage

Duration
3 days

Target group
Newcomers

Course level
Fundamental Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Rma1094

Maintenance Information System

Get familiar with managing the long-term sequence of non-scheduled work and the deport management. Get an introduction into several processes.

Course content

- Monitoring vehicle condition and managing sequence of work steps on vehicle faults
  - SAP ISI: lead maintenance system, system for organizing trains' delivery to depots for maintenance work, system for ordering unscheduled work
  - DIVA: application for electronic dispatching and order management on a mobile end device
  - Process for handling maintenance orders and vehicle approval (QSI processes)
- Coordinating sequence of work steps on complex vehicle faults in cooperation with depots via technical fault elimination preparation
- Quality check following fault elimination
- IT tools and KPIs for checking effectiveness of fault elimination (MTBF, TEV tool)
- Cross-location knowledge management

Duration
5 days

Target group
Newcomers & Executives

Course level
Fundamental Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

Rma1096

Maintenance Regulations

Get an introduction into the maintenance regulations and be prepared for drafting, augmenting and applying maintenance regulations. Get familiar with relevant excerpts from guideline 900.05XY and the process U-5-4-1-S ‘Risk management in the rail system’.

Course content

- Quality and safety management (QSI philosophy) as the basis for DB’s maintenance regulations
- Drafting and optimization process for maintenance regulations (incl. guidelines regarding materials replacement/factoring in wear and failure/risk assessment of safety-relevant parts, components and systems according to CSM-RA)
  - Drafting/augmenting guidelines
  - Drafting/augmenting maintenance manuals
  - Drafting/augmenting work instructions, incl. example
  - Drafting/augmenting short-term instructions (IW-P)
- Distributing and handling regulation updates
- Process for applying maintenance regulations at maintenance depots
  - Creating chains of work steps
  - Drafting work documents/checklists

Requirements

This training requires basic knowledge as a prerequisite.

Duration
5 days

Target group
Specialists & Executives

Course level
Advanced Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Rma1101

Maintenance workshops planning. Staffing. Centralization and decentralization of processes.

Learn the basics of planning a depot, including staffing. You will benefit from years of experience of DB's processes and concepts.

Course content

- Plant planning (vehicle planning, capacity utilization, personnel planning/vacation planning shift planning (single or multiple shift operation) task prioritization)
- Representation of dependencies (availability of the vehicle for maintenance, remaining time until the next use of the vehicle, availability of qualified personnel and spare parts, as well as tools, etc.)
- Presentation of the basics for depot planning and modernization, including staffing
- Representation of optimizations in the depot
- Bets practices and recommendations with regards to centralization and decentralization of processes' organization within workshop
- DB processes and concepts

Duration
3 days

Target group
Newcomers

Course level
Fundamental Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

Rrs1063

Optimizing Maintenance

Get an introduction into the optimization of maintenance and get familiar with increasing intervals between scheduled maintenance steps. Furthermore, learn about the relevant standards (DIN/EN/ISO) and the process M-5-5-23-S, ‘Changing maintenance programs’.

Course content

- Starting point: applicable maintenance grid
- Intervals between scheduled maintenance activities: objectives
- Relevant framework conditions regarding intervals: laws, standards, manufacturers’ specifications and processes
- Process model for increasing intervals
  - Project organization
  - Feasibility check (incl. inspection maintenance programmer)
  - Verification
  - Special monitoring and validation
- Analysis methods and tools
- Mutual interaction and impact regarding other functions
- Incorporating longer intervals into plans and implementation control
- Case study: inspection intervals for class 403 running gear

Requirements

This training requires basic knowledge as a prerequisite.

Duration
2 days

Target group
Executives

Course level
Fundamental Training

Type of training
Single

Methodology
Seminar

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Rop1918

Principals of Railway Operation

Get a comprehensive overview of components and subsystems of the railway operations and the important connections between people, rolling stock, infrastructure components and signaling systems. Understanding these interrelationships and dependencies helps to ensure a safe and successful railway operation and its systems.

Course content

This course provides you with a comprehensive overview of components and subsystems of the railway operations and the important connections between people, rolling stock, infrastructure components and signaling systems. Understanding these interrelationships and dependencies helps to ensure a safe and successful operation of a railway and its systems.

- Overview of components and subsystems of the train control function
- Connections between people, rolling stock, infrastructure components and signaling systems
- Communication systems
- Basic signaling systems
- Railway capacity and control
- ERTMS/ETCS
- Interlocking systems: time tables
- Advanced control systems: radio control, GPS for train control, simplified low capacity systems

Duration
3 days

Target group
Specialists & Executives

Course level
Fundamental Training

Type of training
Single

Methodology
Seminar

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Rop5018

Principals of Railway Operation I

Get a comprehensive overview of components and subsystems of the railway operations and the important connections between people, rolling stock, infrastructure components and signaling systems.

Course content

To ensure an efficient and safe railway operation, it is crucial to be knowledgeable about all the activities and equipment needed to guarantee the safety, control and monitoring of train movements. At the same time, the various railway operations systems require that those working in this area understand the varying rules and requirements well.

This training provides you with a comprehensive overview of components and subsystems of railway operations and the important connections between people, rolling stock, infrastructure components and signaling systems. You will get an insight into the possible means of train protection with intermittent and continuous train control and the related signaling systems. Understanding important interrelationships and dependencies helps to ensure a safe and successful operation of a railway and its systems.

- Components of a railway
- Train path protection
- Basic signaling systems
- ETCS
- GSM-R

Duration
4 days

Target group
All

Course level
Fundamental Training

Type of training
Online or Classroom

Methodology
Seminar

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Rop6018

Principals of Railway Operation II

Build up a comprehensive overview of components and subsystems of the railway operations and important rules and requirements. Learn more about the European Train Control System and the European Rail Traffic Management System as well as acquire a better understanding of overall interrelationships and dependencies, which helps to ensure a safe and successful railway operation and its systems.

Course content

There are now many different stakeholders involved in the day-to-day running of the railway network. This not only increases the complexity of the operation as a whole but also complicates the delivery of a safe service to the customer. Knowing and understanding how to plan railway operation and manage capacity efficiently and effectively is key.

This training aids you to build up a comprehensive overview of timetabling and capacity management of railway operations and gives you insights into railway planning. You will learn about how to plan a train path and important influencing factors. Furthermore, you will acquire a better understanding of the constraints and influencing factors of capacity management using examples from the German Railway.

- Graphic diagram
- Timetabling
- Scheduling
- Capacity management
- Planning of a railway

Duration
4 days

Target group
Specialists & Executives

Course level
Fundamental Training

Type of training
Online or Classroom

Methodology
Seminar

Certification
Attendance Certificate

Rop1050

Rail Operations & Strategic Management

Understand all relevant components for a safe and successful railway operation and its systems.

Course content

- Overview of components and subsystems of the train control function
- Connections between people, rolling stock, infrastructure components and signaling systems
- Communication systems
- Basic signaling systems
- Railway capacity and control
- ERTMS/ETCS
- Interlocking systems: time tables
- Advanced control systems: radio control, GPS for train control, simplified low capacity systems

Requirements

This training requires basic knowledge as a prerequisite.

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Rop1052

Road Map to Timetable – From Green Field to Operation

Learn to develop operational concepts, develop service plans, and understand the interaction between demand, infrastructure, transportation type and operations. Best operating concepts for the customer.

Course content

- Interaction between demand, infrastructure, transport type, operation and Opex
- Different transport types: Integrated Network, Urban development
- Characteristics of different transport types: Speed, Capacity, Stopping distances, Dwell Times, Route length
- Consider the urban population growth, cultural conditions and special events
- Choose the adequate transport system, the optimized line concept and an adequate stopping distance
- Calculate the correct dwell time
- Choose the right travel time/speed for the system
- Create an integrated transport system
- Advantages and disadvantages between transport systems
- Supporting software tools

Duration
5 days

Target group
Newcomers

Course level
Fundamental Training

Type of training
Single

Methodology
Seminar

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Rqs5001

Successful with Railway RAMS

Understand the principals of Reliability, Availability, Maintainability, Safety (RAMS) and the management of RAMS, as well as the principals of Risk Assessment and its methods and application.

Course content

Product liability is gaining importance for the entire rail system in times of growing ridership, increasing digitalization and shorter product lifecycles. Each stakeholder must demonstrate that the rail system is safe, reliable and predictable, with an acceptable residual risk level, and that it can be economically operated and maintained.

With this course, you will understand the concept of RAMS and why it is so important for a successful railway business. This training provides you with a comprehensive overview of RAMS in railways. Many people associate the acronym RAMS with hazard analysis and safety cases and that both activities take place ‘on top’ of the actual design and construction. It is often believed that they are best done at the very end of the project. With us, you will learn that RAMS is much more. It is a management and engineering approach to ensure a successful implementation of the operation and maintenance of the system during and after the project.

- RAMS and its context
- RAMS (project) management
- RAMS analysis and prediction
- Risk assessment and hazard log
- Safety integrity levels
- Safety case and safety assessment
- Lifecycle costs (LCC)
- Performance monitoring and reporting

Duration
5 days

Target group
Newcomers

Course level
Fundamental Training

Type of training
Online or Classroom

Methodology
Lecture

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Rma1097

Technical Maintenance Training

Get an introduction into the technical further training for maintenance technicians, planners, railway construction supervisors and assessors.

Course content

- Design review and formal acceptance
- Innovations and changes/modifications
- Standard overhead lines
- High-capacity overhead lines
- Variants of protective measures and obstacles
- Use of steel cables for railway earthing
- Use of symbols/icons in overhead line schematics and EBS overview
- New applications in overhead lines maintained and operated by Deutsche Bahn and other infrastructure managers

Duration
3 days

Target group
Newcomers

Course level
Fundamental Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

Rop1056

Ticketing and Collection System Management

Learn the difference between car circulation and fleet management as well as how to manage efficiently rolling stock capacities and how to maintain their availability.

Course content

- Definition of tariff systems as well as types of systems with best-practice of DB Group
- Long distance vs. regional and metro trains
- Responsibility of sales organization
- Ticket distribution: difference between manual vs. digital
- Operation field
- Ticket types
- Examples and discussion
- Revenue breakdown

Duration
2 days

Target group
Newcomers & Specialists

Course level
Fundamental Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Rop1053

Transport Capacity Modeling

Get an overview of different parameters for designing a railway by receiving knowledge in the field of planning, systems for capacity improvement, passenger flows as well as controlling capacities.

Course content

- Design parameters of a railway:
  - Objectives
  - Key concept
  - Planning process
- Systems for capacity improvement:
  - Parameters of capacity
  - Capacity Research
  - Interdependencies & challenges
- The participants will know relevant facts about the guidance of passengers with focus on:
  - Passengers' rights
  - Evacuation
- Understanding the system of railway capacity and control:
  - Route access basics (rules & regulations)
  - Ordering of routes
- Timetable construction & operation planning:
  - Different types of timetable
  - Kinds of simulation

Duration
5 days

Target group
Specialists & Executives

Course level
Fundamental Training

Type of training
Single

Methodology
Seminar

Certification
Attendance Certificate

Rop1054

Transport Capacity Modeling & Maintenance Parameters

Understand the parameters for the design of a railway, including the capacity and control system.

Course content

- Overview of the design parameters of a railway
  - Objectives, key concept, planning process
- Light vs. heavy rail
- Understand the system through the system to improve capacity
  - Parameters of capacity, capacity research, interdependencies and challenges
- Understanding the system of Railway capacity and control
  - Route access basics (rules and regulations), ordering of routes
- Timetable construction and operation planning
  - Different types of timetable, kinds of simulation
- The participants know the Entity in Charge of Maintenance (ECM)
- Objectives, concept, responsibilities, involved parts
- ECM regulation as a management system model
- Meaning and conditions of an ECM certificate
- The participants know the systems in rail vehicles that require monitoring
  - Legal basis responsibility
- Transferring the theory of ECM to further challenges and implications

Duration
4 days

Target group
Newcomers

Course level
Fundamental Training

Type of training
Single

Methodology
Seminar

Certification
Attendance Certificate

Rop1057

Vehicle Management Procedure System

Learn the difference between car circulation and fleet management as well as how to manage efficiently rolling stock capacities and how to maintain their availability.

Course content

- Fleet management vs. car circulation
- Responsibility for availability, reliability and economically, commissioning and monitoring, maintenance necessities, guidelines and levels
- Maintenance planning and level inclunding light, heavy and predictive maintenance
- Excellence of operation
- Cleaning planning and operation
- Accidents and vandalism
- Management in hard times: events and peaks

Duration
2 days

Target group
Newcomers & Specialists

Course level
Fundamental Training

Type of training
Single

Methodology
Seminar

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Iis1001

Viriato Basic Training

Learn about the usage of the software, including the definition of infrastructure, definition of trains, organization of train groups and scenarios, calculation of running times, generation of string line charts and track occupation charts, development of equipment rotation plans.

Course content

- Introduction to Viriato concepts, ideas and functions
- Definitions of infrastructure, trains, organization of train groups and scenario
- Calculation of running times
- Generating of string line and track occupation charts
- Development of equipment circulation plans
- Explanation of the basic planning philosophy and the application of these aspects to the Viriato software
- Case studies on the use of Viriato in previous projects in the USA
- Execution of exercises Workshops in groups by using a provided sample

Requirements

This training requires separate laptop/computer of the participants that meet the minimum system requirements and installed version.

Duration
5 days

Target group
All

Course level
Fundamental Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

Rma1098

Wheel Set Refurbishment

Get an introduction to wheelset refurbishment, including the different levels of maintenance, repair and overhaul.

Course content

- Wheel set refurbishment; main principals and procedure
- Main challenges, faults and deviations in wheel set refurbishment
- Wheel bearing inspection and its evaluation/assessment
  - depending on the maintenance level and the corresponding work
  - contents/maintenance depths
- Problems during the wheel bearing inspection

Duration
4 days

Target group
Newcomers

Course level
Fundamental Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

Back to all categories

04

Rail Quality, Safety & Security

Ensuring a safe and risk-free railway system is critical for long-term success. A good understanding of relevant regulations and how to embed legal requirements into business processes is therefore essential. Functional safety is also an issue in this context: As rail technology becomes increasingly complex, the risk of the faulty behavior of railway equipment and systems is increasing. For this reason, employees must have a good understanding of how various components of the rail system, including hardware and software, interact.

Deutsche Bahn is committed to ensuring the safety of its passengers and employees. As Germany's national railway company, it places a high priority on maintaining a safe and secure environment for using its services. Thus, it adheres to strict safety standards and regulations set by the government and regulatory authorities such as the Federal Railway Authority.

Back to all categories

COURSES

Rail Quality, Safety & Security

Audit Training
Business Continuity & Crowd Management
Classification of Train Faults
Description of LCC - Life Cycle Costing
Emergency Management
Emergency Management and Railway Operations
Fundamentals of RAMS - Reliability, Availability, Maintenance & Safety
Management Systems & Process Management
Management Systems & Process Management I
Management Systems & Process Management II
Psychological Crisis Management
QHSE Basic Training
QHSE Risk and Safety Management
Regulations and IMS
Safety Auditors Training
Safety Management in Railway Business (SMS 1/3) – Legal Basics
Safety Management in Railway business (SMS 2/3) – Basics & function
Safety Management in Railway business (SMS 3/3) – Leadership, Task-Competences-Responsibility
Safety Management in Railway Business SMS – Legal Basics
Safety Management in Railway Companies I
Safety Management in Railway Companies II
Safety Management System (SMS)
Safety/Risk Management & Incident Investigation I
Safety/Risk Management & Incident Investigation incl. Quality & Audit II
Specification and Proof of RAMS
Test & Commissioning
Training on TSI - Technical Specifications for Interoperability
Trial Operation
Trial Operation Fundamentals

Rqs1070

Audit Training

Understand the methods and processes of an audit and learn how to identify deficiencies within the rail asset system. You will also develop an understanding of conversation techniques and improve your ability to communicate in difficult situations.

Course content

- Role of an auditor
- Process and goals of audits
- Internal/external audit
- Planning, execution and documentation of audits
- Failure detection, analysis of causes
- Training an execution of realistic audits on the basis of practical examples of the project
- Planning, execution and documentation of audits II
- Successful communication and conversational skills

Rqs1071

Business Continuity & Crowd Management

Understand the terms and methods of emergency management and getting an overview of business continuity management.

Course content

- Overview of the emergency management with focus on:
  - Goals, definitions, terms, legal basis and roles
  - Sources and effects of potential emergency events (fire, violence, accidents)
- The participants know the possibilities of a security concept for:
  - Prevention
  - Effect-reducing measures
  - Rescue concepts
  - Emergency management of Deutsche Bahn (with its roles, process and messages, first measures and emergency team)
- The participants know relevant facts about the disposition of resources in case of emergency and the guidance of passengers (focus on passenger rights and evacuation)
- Overview of business continuity management (BCM) (focus on analysis, strategies and processes)
- Implications for further challenges e.g. by large scale events and new technologies

Rqs1072

Classification of Train Faults

Learn about the different levels and categories of classification of train faults and malfunctions.

Course content

- Different levels and categories of failure classification (severity and effects of failures)
- Error codes in vehicles
- Procedure for processing errors (prioritization of maintenance tasks)
- Responsibilities, information chains and work processes
- Representation of the documentation of faults and their elimination (fault clearance)
- Types of breakdowns during operations in metros
- Step-by-step approach of breakdown maintenance during operation, including distribution of responsibilities between driver and maintenance personnel
- Variants of troubleshooting based on the troubleshooting classification

Rqs1073

Description of LCC - Life Cycle Costing

Get familiar with the fundamentals, the meaning, application and structure of LCC, and get to know the overview of relevant standards (DIN/EN/ISO).

Course content

- Preconditions for LCC technology
- Setting the scope of LCC's implementation at DB
- Methodology and collecting data
- Cost blocks' results
- Assessment
  - LCC characteristics re. HSR
  - Measures for cutting vehicles' LCC
    - Operation, maintenance
    - Procurement specifications and contacts
  - Enhancing LCC methods' effectiveness
    - Process
    - Software tool
    - Data structures and parts-related statements
- Conclusions
  - Cost structure
- Examples:
  - DB's LCC implementation for HSR (ICE 2)
  - LCC view of IGBT upgrade for ICE1/2
  - Current model regarding LCC agreements with manufacturers

Requirements

This training requires basic knowledge as a prerequisite.

Duration
2 days

Target group
Executives

Course level
Fundamental Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

Rqs1074

Emergency Management

Receive an overview of the special features of DB's emergency management.

Course content

- Emergency management at DB (information chains, cooperation with police, fire brigade, rescue services, etc.)
- Stakeholder responsibility in emergency management
- Overview of legal and subordinate regulations
  - Emergency management principals and guidelines (grounding, maximum time first responders should be on site, maximum time for evacuations, etc.)
- Terms for railways, vehicles and trains
- Call connections and rules of (remote) oral communication
- Determination of the signal book and the meaning of the signals
- Tunnel rescue concept and escape routes
- Aids for rapid emergency management (tunnel rescue trains, trackable vehicles of the fire brigade, etc.)
- Tunnel ventilation (control of ventilation in case of fire, etc.)
- Emergency braking devices on the vehicle as well as the emergency brake override

*For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Rqs1046

Emergency Management and Railway Operations

Learn the special features of the emergency management of DB as well as the basics of railway operations.

Course content

- Emergency management in the DB Group
- Responsibility and responsibility of stakeholders in emergency management
- Submission of messages and call for help with dangerous events/investigation of hazards
- Emergency technology of DB Netz AG
- Overview of legal and subordinate regulations
- Terms for railways, vehicles and trains
- Call connections and rules of (remote) oral communication
- Determination of the signal book and the meaning of the signals

Duration
3 days

Target group
Specialists

Course level
Advanced Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

Rqs5026

Fundamentals of RAMS - Reliability, Availability, Maintenance & Safety

RAMS (Reliability, Availability, Maintainability, Safety) is a decision-making key factor in railway business to improve the operational effectiveness.

Course content

Product liability is gaining importance for the entire rail system in times of growing ridership, increasing digitalization and shorter product lifecycles. Each stakeholder must demonstrate that the rail system is safe, reliable and predictable, with an acceptable residual risk level, and that it can be economically operated and maintained.

With this course, you will begin to understand the concept of RAMS and why it is so important for a successful railway business. This training provides you with a fundamental overview of RAMS in railways, covering topics such as basic concepts and relevant standards as well as deliverables to analysis techniques, with RAMS management as the backbone. It will raise your awareness for RAMS and appropriate techniques to attain a better level of safety and reliability.

- Basic RAMS concepts
- Overview of relevant RAMS standards
- RAMS management
- Safety culture
- Typical RAMS analysis techniques

Duration
2 days

Target group
Newcomers & Executives

Course level
Fundamental Training

Type of training
Online or Classroom

Methodology
Seminar

Certification
Attendance Certificate

Rqs1917

Management Systems & Process Management

Get a comprehensive overview of the basics of management systems and process management for railway companies based on European law and standards. In addition, focus closely on quality, risk, safety and process management as well as the continuous improvement process.

Course content

- Fundamentals of an integrated management system using the example of quality management according to DIN EN ISO 9001:2015, risk management according to ISO 31000 and safety management system according to Directive 2004/49/EC
- Importance of the management system in a railway company
- Essential terms and concepts of quality, safety and risk
- Principals, roles and responsibilities in a management system
- Fundamentals of process management and key performance indicators
- Documentation requirements in a management system
- Methods of quality assurance
- Continuous improvement process (CIP) and its moderation methods
- Concrete examples of best practice in quality and risk management
- Principals of integration and further development of management systems

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Rqs5017

Management Systems & Process Management I

Optimize processes and professionalize your management system. Familiarize yourself with the basics of process management and setting up a modern integrated management system.

Course content

This training provides you with a comprehensive overview of the basics of management systems and process management for railway companies based on European law and standards. You will become aware of the importance of the management system in a railway company and learn about key performance indicators.

- Fundamentals of an integrated management system using the example of quality management according to DIN EN ISO 9001:2015, risk management according to ISO 31000 and safety management system according to Directive 2004/49/EC
- Importance of the management system in a railway company
- Essential terms and concepts of quality, safety and risk
- Principals, roles and responsibilities in a management system
- Fundamentals of process management and key performance indicators

Duration
4 days

Target group
All

Course level
Fundamental Training

Type of training
Online or Classroom

Methodology
Seminar

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Rqs6017

Management Systems & Process Management II

Discover modern methods and instruments to optimize processes and professionalize your management system. Ensure continuous improvement to achieve higher levels of quality and safety for your company.

Course content

This training provides you with input on the principals of integration and further development of management systems and process management for railway companies. By focusing closely on quality, risk, safety and process management as well as the continuous improvement process, you will expand your knowledge of process design and optimization. Moreover, you will learn how to apply modern methods and instruments of quality assurance professionally and practice how to set up, operate and improve management systems in safety and quality-oriented companies using concrete examples.

- Documentation requirements in a management system
- Methods of quality assurance
- Continuous improvement process (CIP) and its moderation methods
- Concrete examples of best practice in quality and risk management
- Principals of integration and further development of management systems

Duration
4 days

Target group
All

Course level
Fundamental Training

Type of training
Online or Classroom

Methodology
Seminar

Certification
Attendance Certificate

Rqs1076

Psychological Crisis Management

Learn the fundamentals for a psychological care concept as well as approved strategies for stress prevention.

Course content

- Interaction between demand, infrastructure, transport type, operation and Opex
- Working & care concept and its steps for a successfully set up (example of Deutsche Bahn)
- Incidents in railroad operations and its impacts of stress
- The typical physical and psychological reactions after a stressful incident
  - Posttraumatic stress disorders and shock reactions
- Overcoming-strategies and methods of stress management
- Supporting employees that following up a traumatic event
  - Preparation of tasks of psychological first aid
- Learning how to cope with impacts, traumatic events and affected employees
- Strategies to prevent stress successfully

Duration
2 days

Target group
Newcomers

Course level
Fundamental Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Rqs1077

QHSE Basic Training

Get to know the area of the safety management, risk management and incident investigation.

Course content

- Management systems
- Concept of process based and risk orientated management
- Importance of monitoring
- How to determine key data and how to define qualification profiles
- Get to know key actors within railway systems
- Emergency plans and Incident investigation as essential elements of the SMS
- Safety culture as a basic element of the SMS
- Get to know risk-relevant terms and definitions
- Define appropriate security measures and familiarize yourself with the principals of risk assessment
- Understand the context of contingency and continuity management and roles and responsibilities
- Understand incident investigation as part of a safety management system
- Understand the principals of on-site-investigation
- Learn incident investigation techniques and conduct the root cause analysis
- Learn to deviate adequate indicators for corrective actions
- Understand to build a systematic framework for incident investigations
- Understand the concept of Just Culture

Duration
3 days

Target group
Newcomers & Executives

Course level
Fundamental Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

Rqs1078

QHSE Risk and Safety Management

Get a comprehensive understanding of the principals of risk and safety in the rail systems and how to influence this.

Course content

- Core workflow of a railway system
- Main procedures & core processes of a railway operation & railway undertaking
- Concept of value-added-chain of a company
- Methodological requirements of a system definition according to international standards such as ISO 9001
- Generic risk management process failure identification based in KPI´s
- Concept of risk orientation & defects identification
- Definition and implementation of corrective action
- Implementation of changes
- How to identify risks and how to define risk control measures
- Importance of monitoring and continual improvement
- Concept of systematic safety management
- Target & process orientation
- PDCA-cycle
- Safety critical procedure steps according to KPI´s inspections or audit
- Validation of sustainability of the safety management system

Duration
5 days

Target group
Newcomers & Executives

Course level
Fundamental Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

Rqs1051

Regulations and IMS

Get an introduction into the regulations and IMS and a description and handover of the integrated management manual. Furthermore, get familiar with relevant standards (DIN/EN/ISO) and directive (2004/49/EC & 2008/110/EC).

Course content

- The fundamentals of integrated management manual
  - Purpose
  - Relevant standards and guidelines
  - Structure
- Structure of the process network
  - Process landscape
  - Value chain diagram (engl.:”VCD”/germ.: “WKD”)
  - Process descriptions
- Description of the service processes in vehicle management and maintenance
  - Planning (7 processes)
  - Dispatching (2 processes)
  - Operations (23 processes)

Requirements

This training requires basic knowledge as a prerequisite.

Duration
5 days

Target group
Newcomers & Executives

Course level
Fundamental Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

Rqs1079

Safety Auditors Training

Get ready to prepare/conduct/close a safety audit and develop audit skills through practical examples. The training is based on a case study with group exercises which simulate a real audit.

Course content

- The ISO 19011 standard
- Auditing definitions, - best practice and the audit process
- Practices and techniques to prepare a safety audit
- Preparation of the interviews
- The expected evidence from the audit
- Conduction to the kick off meeting
- Audit techniques
- Presentation of the audit results
- Conducting to the audit closing meeting
- Audit reporting and follow up
- Occupational health and safety issues for the auditors

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Rqs1906

Safety Management in Railway Business (SMS 1/3) – Legal Basics

Get a good overview of the national and European basics for a railway operation. It also takes a close look at a Safety Management System (SMS) and provides insight into the risk management process and stakeholders according to Common Safety Methods - Risk Assessment (CSM-RA). It also explains technical specifications and monitoring methods. It is particularly aimed at people working with a safety management system and those who are or will be working as safety officers/managers.

Course content

- National legal basics for a railway operation
- European legal basics for a railway operation
- Safety Management System (SMS): policy and effects
- The risk management process and stakeholders according to CSM-RA
- Scope and objective of EU regulations on CSM/ECM (Entity in Charge of Maintenance)
- Monitoring and evaluation of processes in SMS
- Technical specifications for interoperability (TSI)
- Request for a safety certificate/safety permit

Duration
3 days

Target group
All

Course level
Fundamental Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

Rqs1099

Safety Management in Railway Business (SMS 2/3) – Basics & function

Learn to implement the requirements of the relevant EU directives and EU regulations for the SMS and ECM in the processes of their companies. Become familiar with the risk-oriented approach and learn the procedures and methods from the relevant CSM regulations. Be aware of special aspects of continuous improvement in the SMS as well as the task and roles of the SMS officer. Gain an overview of emergency, crisis and continuity management (BCM - Business Continuity Management).

Course content

- Structure and implementation of a Safety Management System (SMS)
- Functions in a SMS
- Process organization of a SMS organization
- SMS vs. Common Safety Methods (CSM)
- Overview Emergency, Crisis, Continuity Management in SMS
- Overview KRITIS: Implementing IT Security Management

Requirements

The participation in this course requires the completion of the course Rqs1906.

Duration
3 days

Target group
All

Course level
Advanced Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

Rqs1100

Safety Management in Railway Business (SMS 3/3) – Leadership, Task-Competences-Responsibility

Gain an overview of the legal requirements and tasks of companies when dealing with accidents/incidents. Based on a practical case study, the participants will learn about the first steps of accident investigation, the resulting analysis (including human factors), the derivation of recommendations and the monitoring of accidents.

Course content

- Event investigations
- Delegation of functions
- Leadership in Safety Management System (SMS)

Requirements

The participation in this course requires the completion of the course Rqs1099.

Rqs5006

Safety Management in Railway Business – Legal Basics

Put safety first. Develop a good understanding of the relevant EU directives and EU regulations for a Safety Management System (SMS) and an Entity in Charge of Maintenance (ECM). Reflect on how to embed legal basics into existing company processes.

Course content

This training provides you with a good overview of the national basics as well as the European foundations for a railway operation. Furthermore, it looks closely at a Safety Management System (SMS) and includes insights into the risk management process and stakeholders according to Common Safety Methods - Risk Assessment (CSM-RA). Moreover, it explains technical specifications and monitoring methods. It is aimed in particular at people who work with a safety management system and those who will be working as a safety officer/manager.

- European legal basics for a railway operation
- Safety Management System (SMS): policy and effects
- The risk management process and stakeholders according to CSM-RA
- Scope and objective of EU regulations on CSM/ECM (Entity in Charge of Maintenance)
- Monitoring and evaluation of processes in SMS
- Technical specifications for interoperability (TSI)
- Request for a safety certificate/safety permit

Duration
4 days

Target group
All

Course level
Advanced Training

Type of training
Online or Classroom

Methodology
Seminar

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Rqs1080

Safety Management in Railway Companies I

Gain security of actions in the implementation of common security methods (CSM) such as risk management, monitoring as well as maintenance management requirements from the ECM regulation. *Qualification for incoming safety managers (SMS I).*

Course content

- Requirements for SMS and ECM
- Basics and roles within the application of CSM
- The risk management procedure in accordance with EU Regulation 402/2013/EC
- Implementation of the monitoring procedure in accordance with 1078/2012/EC
- Criteria for evaluating the SMS: specifications, procedures, reporting
- Special aspects of continuous improvement in SMS
- The safety culture, challenges and role models

Duration
4 days

Target group
All

Course level
Fundamental Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

Rqs1081

Safety Management in Railway Companies II

Gain security of actions in integrating the relevant SMS and Maintenance Management (ECM) requirements into their management system. Be able to guide executives and employees in the use of common security methods (CSM). ***Qualification for incoming safety officers (SMS II).***

Course content

- Entity in Charge of Maintenance (ECM):
  - Objectives
  - Concept
  - Responsibilities
  - Involved parts
- Vehicle maintenance management system under consideration of ECM VO 445/2011
- Planning and optimization of maintenance management program: DIN 27201-1/EN 17023/CSM-RA
- Organization with its interfaces, interactions and complexity, according to the systemic approach
- Influencing the impact of social assessing security developments
- Methods of reducing complexity
- Requirements of implementation for SMS and Maintenance Management Systems (ECM)
- Evaluation the SMS on the basis of the results from audits and monitoring
- Basics and methods of knowledge management
- The role as a Safety Manager in the organization and its challenges as responsible in the SMS

Duration
4 days

Target group
All

Course level
Advanced Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

Rqs1082

Safety Management System (SMS)

The training simplifies the exchange of ideas and causes on railway safety between the management team. It integrates the management team towards one target: to improve railway safety.

Course content

- Safety Policy Statement
- Procedure to ensure
  - safe designs of a railway asset and safe operations
  - safety of infrastructure and safety of rolling stock
  - continuous improvements of safety and compliance with requirements
- Procedure for
- documentation of safety information, staff involvements and change management
- Procedure to
  - manage safety hazards from (sub)contractors
  - assess the safety performance
  - develop and maintain a Competency Management System
  - communicate safety information
  - manage emergencies and safety audits and inspections
  - manage the Safety Committee and to control risks from third parties

Duration
2 days

Target group
Newcomers

Course level
Fundamental Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

Rqs1083

Safety/Risk Management & Incident Investigation I

Understand the core processes of Safety- and Risk Management Systems (I+II) and the core processes of incident investigation and the integration in safety management systems.

Course content

- The value-added-chain and relevant core processes
- The concept of process based and risk orientated management and the context to railway company
- Risk identification and the definition of processes as risk control measures
- The concept of systematic safety management
- How to ensure effectiveness of the management system – the importance of monitoring and continual improvement
- Get to know the generic risk management process
- The definition of the methodological requirements of a system
- The concept of risk analysis and evaluation by estimation of frequency of an incident and severity of its consequences
- The concept of hazard management
- The concept of incident investigation - What does an incident mean for the SMS (Safety Management System)?
- Emergency Management and on-site investigation
- Concepts & methods of root cause analysis in theory and practice
- Development of implications for safety and just culture
- Understand the concept of Just Culture

Duration
3 days

Target group
Newcomers & Executives

Course level
Fundamental Training

Type of training
Single

Methodology
Seminar

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Rqs1084

Safety/Risk Management & Incident Investigation incl. Quality & Audit II

Understand the principal elements of rolling stock and trams and its implications.

Course content

- The value-added-chain and relevant core processes
- The concept of process based and risk oriented management and the context to railway company
- Risk identification and the definition of processes as risk control measures
- The concept of systematic safety management
- Importance of monitoring and continual improvements
- Generic risk management processes
- The definition of the methodological requirements of a system
- The concept of risk analysis, evaluation, hazard management and incident investigation
- Emergency Management and on-site investigations
- Independent safety approval and certification
- ISO 9001 standards
- Quality management system and safety culture
- Audit process
- PDCA concept
- Competence assessment

Duration
3 days

Target group
Newcomers & Executives

Course level
Fundamental Training

Type of training
Single

Methodology
Seminar

Certification
Attendance Certificate

Rqs1085

Specification and Proof of RAMS – Reliability, Availability, Maintenance & Safety

Get familiar with the specification and proof of RAMS and receive an introduction into the overview of relevant standards (DIN/EN/ISO).

Course content

- Preconditions for RAMS technology
- RAMS engineering: competencies, models, methods, processes
- Specification and proof of RAMS:
  - Conceptual design phases (1 – 14)
  - Monitoring phases
  - RAMS lifecycle (verification, validation)
- RAMS elements:
- Reliability, availability, maintenance and safety
- Setting the scope of RAMS' implementation at DB
- Examples:
  - RAMS requirements for HSR (ICE 2)
  - Availability in the "High Speed Train Europe" specifications
  - RAMS methodology when optimizing maintenance programs
  - RAMS inspection re. temperature monitoring for the ICE1/2 gearbox bearing (2006 study, rev. 2016)
  - RAMS inspection re. reversing unit of ICE 3/T door

Requirements

This training requires basic knowledge as a prerequisite.

Duration
2 days

Target group
Specialists & Executives

Course level
Advanced Training

Type of training
Online or Classroom

Methodology
Lecture

Certification
Attendance Certificate

Rqs1086

Test & Commissioning

Get familiar with the standards approval strategies and receive an introduction to the basics of approval.

Course content

- Overview of the general procedure for applying for the placing in service authorization for railcars (who is involved, which documents are required, schedules, costs)
- Create an approval strategy based on standards:
  - FAT (Factory Acceptance Tests)
  - FIT (Factory Integration Tests)
  - SAT (Site Acceptance Tests)
  - SIT (Site Integration Tests)
  - SATOV (Overall Site Acceptance Tests)
- Stages and procedure of the approval strategy in the metro
- Basic principals of an approval (regulations, descriptions, manufacturer documentation, etc.)
- Responsibilities for approval
- Criteria for successful approval
- Execution and documentation of tests

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Rqs1008

Training on TSI - Technical Specifications for Interoperability

Get an overview of the TSIs (Technical Specifications for Interoperability). Furthermore, be able to read/study the TSIs and understand their interconnection and their connection with the European legislative framework for railway safety and interoperability.

Course content

- Introduction to the TSI's and their chronological development
- Examples of technical barriers in Europe
- The European legislation for railway interoperability and railway safety
- The European Interoperability Directive
- The role of the TSIs in the European legislative framework on railway safety and interoperability
- The structure of the TSI and the information provided by them
- The functional interfaces between the railway subsystems
- The interoperability constituents and their approval procedure in the European railway market
- The open points of the TSI and the application of national rules

Duration
2 days

Target group
Newcomers & Specialists

Course level
Fundamental Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Rqs1055

Trial Operation

Get familiar with the fundamentals of trial operation and how to organize such a trial operation.

Course content

- Basics of trial operation (equipment, trained and educated personnel, documents, etc.)
- Planning of a successful trial operation (planning, time frame, trades involved, responsibilities, etc.)
- Elements of the trial operation
- Criteria for successful trial operation
- Procedures and regulations based on international standards and best practices

Duration
4 days

Target group
All

Course level
Fundamental Training

Type of training
Single

Methodology
Seminar

Certification
Attendance Certificate

Rqs5028

Trial Operation Fundamentals

This course explains the fundamentals of implementing a trial operation with no clients before commercial service and the advantages it brings before the final commissioning.

Course content

The Trial Operation Process is a key activity for any railway. This process will assure that a whole completely new line or the integration of a new subsystem into the line will function as designed, with no disruptions, interferences or problems.

In this course, you will learn from real experience the complete Trial Operation Process. Starting with the fact that a railway is the integration of a number of different subsystems, you will move on to look at the identification and management of the interface between those subsystems. Furthermore, you will examine how the trial operation should be implemented for a smooth operation. At the same time, you will gain an understanding of the main subsystem interfaces for metro systems, main and regional lines, commuter trains, light rail and freight. You will also learn how to manage the many different stakeholders that take part in the trial operation process.

- The necessity for Trial Operation Process
- The integration of railway subsystems as a functional transport system
- Kinds of trial operation: regular, degraded mode and stress mode
- Roles and responsibilities in a trial operation project
- Managing systems, subsystems and interfaces
- Evaluating risks and making contingency plans for each interface
- Lessons learnt from the Trial Operation Process

Duration
4 days

Target group
Newcomers & Executives

Course level
Fundamental Training

Type of training
Online or Classroom

Methodology
Seminar

Certification
Attendance Certificate

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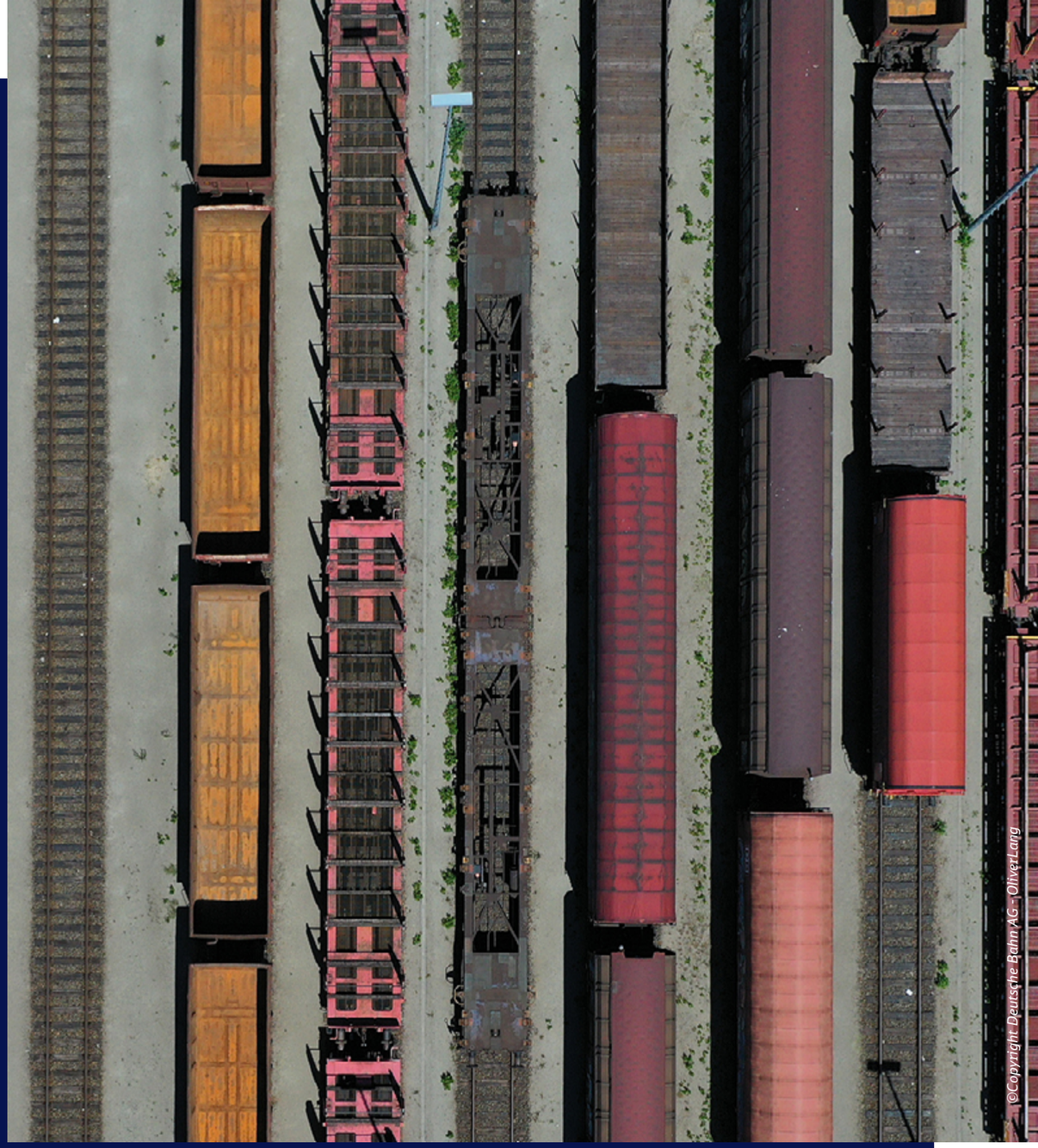
05

Rolling Stock

“Rolling stock” is a term used to refer to all rail vehicles used for the transportation of passengers or goods. As the backbone of railway transportation, these vehicles are essential for the functioning of the entire railway network. It is therefore of the utmost importance that they are well maintained and meet strict safety and reliability standards.

With a rolling stock exceeding 110,000 vehicles, Deutsche Bahn has experience with the management and maintenance of various types of vehicles, whether it be locomotives, electric multiple units, high-speed trains, passenger coaches or freight cars. By 2030, DB will invest a record EUR 19 billion to modernize and expand its vehicle fleet, thus increasing capacities and becoming even more customer- and climate-friendly[1].



[1] Source: Deutsche Bahn AG: DB Investing Record Amount in New Rolling Stock. More Than EUR 19 Billion by 2030, September 21, 2022

Back to all categories

COURSES

Rolling Stock

Certification as Expert of Vehicle Engineering
Certification of Rolling Stock
Component Maintenance
Condition of Vehicles
Depot Management
ECM Management System and its Application
ETCS for Rolling Stock & On-Board Unit
Fundamentals of Rail Electrical & Power Engineering
Fundamentals of Railway Brake Technology
Fundamentals of Rolling Stock
Heavy Bogie Maintenance
Rolling Stock & Maintenance
Rolling Stock Fundamentals
Rolling Stock Fundamentals I
Rolling Stock Fundamentals II
Rolling Stock Principles & Maintenance Process
Study Tour: Rolling Stock
Technical Basis of Combustion Engines
Technical Basis of Locomotives and Power Cars

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Voc1002

Certification as Expert of Vehicle Engineering

Get familiar with rolling stock and operations (I+II) and vehicle engineering and operations.

Course content

- The basic elements of rolling stock: components, aspects, functions and interactions
- The differences and similarities and advantages and disadvantages of rolling stock
- Technical consideration of a specific element of rolling stock: brakes
- Excursion to the depot of trams
- Technical considerations specific to the tram
- Transferring the theory to the rolling stock to metro and tram: advantages and disadvantages
- The development of the concept of system engineering and integration and related philosophies
- Interface between systems engineering components and systems integration
- Overview of the system engineering process
- Design phase
- Practical guide to concepts

Duration
3 modules

Target group
All

Course level
Fundamental Training

Type of training
Program

Methodology
Seminar

Certification
Attendance Certificate

Rrs1005

Certification of Rolling Stock

Get an operating certificate for railroad rolling stock (I) and how to get an operating permission for railroad rolling stock (II + III).

Course content

- Development of European railroad market before and after liberalization
- Overview of the general procedure for applying for a commissioning authorization for railcars
- Description of the detailed procedure for requesting the commissioning of railcars step by step
- Different procedure for applying for a commissioning authorization for different types of rail cars (passenger, freight, locomotives, construction cars)
- Preparation of an application for the approval of the commissioning of a special type of railcar

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Rrs1059

Component Maintenance

Get an introduction into the HSTs' running gear and wheelsets and get to know the maintenance philosophy and performing work at DB AG.

Course content

- Maintenance of running gear:
  - Monitoring and diagnoses during operations
  - Focal issues for light maintenance (inspecting and checking up running gear)
  - Maintenance work on running gear detached from trains (overhauling)
  - Unscheduled maintenance work
- Maintenance of wheelsets
  - Light wheelset maintenance and maintenance work on wheelsets detached from trains
  - Wear and damage monitoring
  - Non-destructive testing
- Special wheelset maintenance procedures
  - Stand-alone wheelset maintenance (batch model)
  - Wheelset monitoring during operations – out-of-round detection system and wheel geometry monitoring

Requirements

This training requires basic knowledge as a prerequisite.

Duration
2 days

Target group
Executives

Course level
Fundamental Training

Type of training
Single

Methodology
Seminar

Certification
Attendance Certificate

Rrs1060

Condition of Vehicles

Get familiar with monitoring and inspecting the condition of vehicles and get an introduction into the IMS process M-5-5-25-S ‘Checking and evaluating rail vehicles’ current condition, identifying immediate measures.

Course content

- Monitoring vehicle quality levels; defining target condition, gathering data on current condition
- Classifying vehicle errors that occur to assess safety relevance in ISI
- Standardized implementation of condition checks during operation
- Technical acceptance of maintenance measures
- Assessing condition checks and acceptance in form of key fault figures
- Vehicle database: creation and use
- Regular cascading reporting (structure: daily, weekly, monthly, plus based on vehicle family, class or individual components)
- Automatic assessment of worklists and rating of comfort and quality relevance in vehicle quality management system

Requirements

This training requires basic knowledge as a prerequisite.

Duration
3 days

Target group
Executives

Course level
Fundamental Training

Type of training
Single

Methodology
Seminar

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Rrs1056

Depot Management

Learn the difference between car circulation and fleet management as well as the processes within a depot and how to ensure reliable operations through traffic planning and fleet conceptions.

Course content

- “Car circulation vs. fleet management”
- Rolling Stock (availability, safety, comfort), depot concepts and layout depending on vehicle numbers
- Supply of Rolling Stock and necessities
- From schedule to car-circulation
- View in the planning conceptions, systems and activities
- View in the fleet and depot conceptions, systems and activities
- Traffic planning in the case of construction sites, big fairs, events and peaks
- Depot concepts and layout – construction of depots in relation to vehicle numbers

Duration
3 days

Target group
Newcomers & Specialists

Course level
Fundamental Training

Type of training
Single

Methodology
Seminar

Certification
Attendance Certificate

Rrs1044

ECM Management System and its Application

Get an introduction into the ECM management system and its application, and get to know the EU Directive 445/2011 and the process M-5-5-24-S assessing performance of rail vehicle subsystems.

Course content

- Background
  - Current European regulations regarding railway safety and ECRM
- Relevant framework conditions
  - Laws, standards, guidelines
  - EU regulations 445/2011: core requirements
  - ECM's context (RIUs, RUs, keepers, authorities, service providers) and ECM roles (ECM I – ECM IV)
- Putting ECM into practice at DB Long Distance AG
  - Integrating the ECM system with the existing IMS system and interaction with the SMS system
  - Defining the keeper's roles and development of vehicle management
  - Interaction with non-long distance maintenance providers, incl. managing collaboration with DB Fahrzeuginstandhaltung
  - ECM implementation: approach/steps
- ECM certification: approach

Requirements

This training requires basic knowledge as a prerequisite.

Duration
3 days

Target group
Specialists & Executives

Course level
Fundamental Training

Type of training
Single

Methodology
Seminar

Certification
Attendance Certificate

Rrs1061

ETCS for Rolling Stock & On-Board Unit

Refresh and gain a better understanding of ETCS and the On-Board Unit and get an overview of each building block as well as instructions for usage of it. You will also be able to plan ETCS independently according to relevant guidelines and to understand the different levels and modes as well as ETCS hardware components. Gain knowledge of the interaction between the interlocking and the ETCS route center (RBC).

Course content

- Functionality of ETCS as a system
- Differentiation of ETCS levels and its features
- Performance of ETCS-versions with focus on Level1 Limited Supervision
- Exemplary: hardware structure of ETCS
- Interaction and effects of components
- ETCS planning and rules & regulation for its planning
- Planning examples for ETCS L2 and L1LS
- Standardization of ETCS
- Basis functions of ETCS
- Trackside assemblies and equipment: balise, LEU, RBC
- Management and handling of personalized hardware
- On-Board equipment: OBU, DMI, EVC

Requirements

This training requires basic knowledge as a prerequisite.

Duration
8 days

Target group
Specialists

Course level
Fundamental Training

Type of training
Single

Methodology
Seminar

Certification
Attendance Certificate

Rin5003

Fundamentals of Rail Electrical and Power Engineering

Understanding the principals of Rail Electrical and Power Engineering and the requirements of overhead catenary systems helps to ensure safety in electrical systems.

Course content

Rail Electrical & Power Engineering covers the design, development, production and testing of electrical devices, systems and equipment related to the rail industry. This includes communication systems, power generators, motors, navigation and electrical systems. As railways are continuously expanding and technology is constantly changing, it is important to keep up with these changes and know what challenges lie ahead to be on the safe side.

This training provides you with an overview of the principals of railway power generation and distribution, informing about different power supplies and energy systems. Furthermore, it looks closely at the requirements for overhead catenary systems and includes insights into all properties and materials for the correct dimensioning of the overhead catenary. Moreover, it explains and examines safety in electrical systems, thus increasing your awareness of this matter.

- Information about traction power supply and energy systems
- Central/decentralized rail power supply
- Advantages/disadvantages of the energy systems
- Supply of the overhead catenary/Power supply areas
- German Railway Guideline Ril 9970301
- Consideration of all properties and materials for the correct dimensioning of the overhead catenary
- Construction and components of the overhead catenary line systems
- Terms, construction methods, components, laws & regulations
- Safe work (DIN VDE)
- Electrical systems for rescue workers
- Reflection on the system of electrical engineering and deduction of further challenges

Duration
4 days

Target group
Newcomers & Executives

Course level
Fundamental Training

Type of training
Online or Classroom

Methodology
Seminar

Certification
Attendance Certificate

Rrf2006

Fundamentals of Railway Brake Technology

Learn and understand how the different railway brakes work to ensure smooth and safe railway operations.

Course content

The brake as a central element of rail vehicles is one of the basic elements for safe railway operation. Different types of brakes are used for rail vehicles. This training offers an in-depth insight into the different brake systems, their modes of operation and areas of application.

In this course, you will understand the origin and principal of today's air brake. Furthermore, you will get to know and understand the basic functions of the most important pneumatic parts. Besides learning about the interrelationships of the components in the railway brake system, you will become aware of the security relevance of the system and their components. The knowledge acquired will be consolidated through interactive exercises.

- Origin and principal of railway brake technology
- Basic functions of the main pneumatic parts
- The brake operation
- Components, characteristics and design of freight/passenger train and traction unit brakes

Duration
2 days

Target group
All

Course level
Fundamental Training

Type of training
Single

Methodology
Seminar

Certification
Attendance Certificate

Rrs1065

Fundamentals of Rolling Stock

Understand the main elements of rolling stock, tram and the principals of brakes and its implications.

Course content

- Basic elements of rolling stock: components, aspects, functions and interactions
- Differences and similarities and pros and cons of different types of rolling stock
- Technical consideration of a specific element of rolling stock: bogie and brakes
- Short history of the railway traction design
- Terminology for railway traction systems and their components. Assemblies and the individual components in the vehicle and in the vehicle body
- Fundamentals of electrical engineering and electronics as found in traction systems
- Basics of vehicle technology and diagnostic systems (bogie arrangement, vehicle electrical systems, etc.)
- Traction basics physics and electric traction and sources
- Chassis principals and science
- Development of implications and excursion to the depot of trams
- Technical considerations specific of tram
- Transferring the theory to the rolling stock to metro and tram
  - Advantages and disadvantages
- Insights into reliability and management challenges

Duration
4 days

Target group
Newcomers & Executives

Course level
Fundamental Training

Type of training
Single

Methodology
Seminar

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Rrs1062

Heavy Bogie Maintenance

Get an introduction into the principals of heavy bogie maintenance and the maintenance of components with different intervals.

Course content

- Overhauling bogies and maintenance of bogie components
  - Measuring/calibrating bogies when detached from and attached to vehicle bodies
  - Checking component performance (e.g. spring characteristics/damper forces)
  - Overhauling components (e.g. dampers)
  - Scheduled component replacement at varying intervals
- Maintenance of other subsystems
  - Drive train
  - Brake module

Requirements

This training requires basic knowledge as a prerequisite.

Duration
2 days

Target group
Executives

Course level
Fundamental Training

Type of training
Single

Methodology
Seminar

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Rrs1064

Rolling Stock & Maintenance

Learn about the fundamental concepts on undercarriage and its system and develop the capacity to understand the technical complexities, costs, reliability and maintainability of the metro and the railway equipment.

Course content

- Basic elements of rolling stock
- Short history of the railway traction design
- Terminology for railway transport traction systems and their components
- Basic electric and electronic engineering as found in traction systems
- Technical consideration of a specific element of rolling stock
- Traction basic physics
- Electric traction and sources
- Undercarriage principals and science
- Management challenges

Requirements

This training requires basic knowledge as a prerequisite.

Duration
5 days

Target group
Specialists & Executives

Course level
Advanced Training

Type of training
Single

Methodology
Seminar

Certification
Attendance Certificate

Rrs1912

Rolling Stock Fundamentals

Develop your competence in the area of rolling stock and vehicle technology by understanding the technical complexities and importance of reliability and maintainability of rolling stock to find sustainable solutions for the future. Enhance performance and profitability.

Course content

This course provides you with a comprehensive overview of the principal elements of rolling stock, the basics of vehicle technology, and technical considerations specific to the mode of transport and element of rolling stock. Furthermore, it looks at traction systems, explains fundamentals of electrical engineering and electronics, and includes insights into reliability and management challenges. It leads to you being able to develop an understanding of the technical complexities, costs, reliability and maintainability of rolling stock.

- Basic elements of rolling stock
- Brief history of the railway traction design
- Terminology for railway transport traction systems and their components
- Basic electric and electronic engineering as found in traction systems
- Technical consideration of a specific element of rolling stock
- Traction basic physics
- Electric traction and sources
- Undercarriage principals and science
- Management challenges

Duration
3 days

Target group
Specialists & Executives

Course level
Fundamental Training

Type of training
Single

Methodology
Seminar

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Rrs5012

Rolling Stock Fundamentals I

Get a good overview of the major elements of rolling stock and subsystems, as well as the basics of vehicle technology. You will also learn about traction systems and their components, as well as the basics of electrical engineering and electronics. Gain insight into the technical complexities, reliability and management challenges.

Course content

- Basic elements of rolling stock
- Short history of the railway traction design
- Terminology for railway transport traction systems and their components
- Basic electric and electronic engineering as found in traction systems

Duration
4 days

Target group
Specialists & Executives

Course level
Fundamental Training

Type of training
Online or Classroom

Methodology
Seminar

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Rrs6012

Rolling Stock Fundamentals II

Get a good overview of the principal elements of rolling stock, the basics of vehicle technology, and technical considerations specific to the mode of transport and element of rolling stock. You will also learn about traction and undercarriage principles and science. Receive insights into reliability and management challenges and develop an understanding of the technical complexities, costs, reliability and maintainability of rolling stock.

Course content

- Technical consideration of a specific element of rolling stock
- Traction basic physics
- Electric traction and sources
- Undercarriage principals and science
- Management challenges

Duration
4 days

Target group
Specialists & Executives

Course level
Fundamental Training

Type of training
Online or Classroom

Methodology
Seminar

Certification
Attendance Certificate

Rrs1066

Rolling Stock Principles & Maintenance Process

Understand vehicles infrastructure and the requirements of overhead catenary systems and address the awareness for safety in electrical systems.

Course content

- The ECM Directive (EU) 445/2011, the CSM Directives (EU) 352/2009 and (EU) 1078/2012 and their impact on maintenance providers
- Maintenance management system based on the ECM Directive (EU) 445/2011 for vehicles
- The principal of maintenance and different programs/strategies
- Fundamentals of testing and commissioning
- Preventive, predictive and corrective maintenance
- Cost and reliability
- Engineering change management of systems
- Asset management for infrastructure as a part of organizational goals
- ISO 55001 with link to customers' AM Policy, AM Strategy and AM objectives
- Engineering change management of infrastructure
- Ensuring compliance with the interoperability requirements
- The most common defects of rail infrastructure

Duration
4 days

Target group
Newcomers & Executives

Course level
Fundamental Training

Type of training
Single

Methodology
Seminar

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Rrs1067

Study Tour: Rolling Stock

Receive an overview of the rolling stock simulator system and be guided to 5 construction site visits, 2 knowledge events and 3 cities in Germany.

Course content

- DB's experience about the railway system: rolling stock [Frankfurt]
- Practical visit and guided tour of Frankfurt Central Station: 'A look behind the scenes at the railway laboratory' [Frankfurt]
- Practical visit and guided tour of the operations control center [Frankfurt]
- Practical visit and guided tour through HSR Light Maintenance Workshop [Frankfurt]
- Practical visit and guided tour through DB Cargo Locomotive Maintenance Workshop [Mannheim]
- Practical visit and guided tour through DB Training rolling stock full motion simulator facility, incl. 'driving' experience session [Fulda]

Requirements

Participants' international flights and/or other travel expenses to the point of arrival and departure will not be reimbursed.

Duration
4 days

Target group
All

Course level
Fundamental Training

Type of training
Study Tour

Methodology
Study Tour

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Rrs1068

Technical Basis of Combustion Engines

Understand the technical basics of combustion engines and the technical principals of electric motors.

Course content

- The principals of diesel locomotives and its mechanical structure
- Advantages and disadvantages of diesel traction
- Specific features for mixed traction power
- Basic principals of vehicle design
- Bogie and drive systems of a diesel locomotive
- Classification of drive types
- Structure of diesel engines
- The operating principal of a diesel engine
- Use of turbochargers and charge air cooling
- The lubricating oil circuit in a diesel engine
- Power transmission in diesel locomotives
- General information on power transmission and its types
- Other components in the drive system

Requirements

This training requires basic knowledge as a prerequisite.

Duration
3 days

Target group
Specialists

Course level
Advanced Training

Type of training
Single

Methodology
Seminar

Certification
Attendance Certificate

Rrs1069

Technical Basis of Locomotives and Power Cars

Describe and understand the technical basics of locomotives and traction vehicles as well as electric motors as a basis for the work as a train driver.

Course content

- The principals of diesel locomotives
- Fundamentals of traction unit and railcar technology
- History of the development of rail vehicles and its technical components
- Different vehicle concepts – locomotives and railcars
- Mechanical vehicle design
- Wheelset and force effects on wheels
- Transmission of traction in the vehicle
- Electric circuits: common electric, symbols, reading and understanding electric circuit diagrams as well as the principal of electric circuits and measurements
- Compressed-air generation and distribution
- Brake systems of the traction units
- The principal of braking on trains
- Brake systems of traction units
- Brake operation and calculation of the braking power

Requirements

This training requires basic knowledge as a prerequisite.

Duration
3 days

Target group
Specialists

Course level
Advanced Training

Type of training
Single

Methodology
Seminar

Certification
Attendance Certificate

Back to all categories

06

Innovation & Digitalization

Technology today is more than just mechanical or civil engineering; the digital revolution has created more demand than ever for computer-based products and solutions in the mobility and railway industry. Keeping up to date with digitalization and implementing new technologies is vital in the workplace because it enables companies to improve efficiency and effectiveness. This is especially true for the railway industry as digital technologies offer crucial advantages that help companies gain a competitive edge.

The digital and technical strategy of Deutsche Bahn is designed to develop an ultra-smart mobility network by 2030 – connected, automated and customer-oriented. As part of the Digitale Schiene Deutschland, the infrastructure is being modernized and digitalized. This together with automation and artificial intelligence (AI) are key to a higher capacity and optimal utilization of the rail network.

Back to all categories

COURSES

Innovation & Digitalization

3D Printing
AI for Railways: Let Machines Learn for You
Basics: Digital Planning & Construction (BIM)
Big Data @ Asset Management
Blockchain in the Rail Industry
Chat Bots and Voice Solutions
Cloud Solutions: Efficient, Scalable & Secure IT Operation
Core Technologies of Digital Railways I
Core Technologies of Digital Railways II
Data Solutions: Finding Hidden Treasures In Your Data
Deployment of Drones
Design Thinking & Meeting Efficiency
Digital Customer Experience for Railways
Digital Innovations: Creativity to be Successful & Competitive
Digital Logistics
Digital Rail Manager
Digital Transformation: Staying Successful & Competitive
Digital Workplace: Innovative Digital Workplaces
Digitalization of Rail Assets
Foster Digital Innovation at your Rail Company
Immersive Technology for Railways
Immersive Technology for Railways: Different Realities to Increase Efficiency
Internet Of Things (IoT)
Internet of Things (IoT): Shared Environment for Increasing Predictive Maintenance and Smarter Mobility
Internet of Things: Making Rail Companies Smarter
Lean Versus Agile Management in Passenger Transport
Rail Companies in the Digital Age
Remote Management
Smart Mobility for Rail: Improving First/Last Mile Connectivity
Study Tour: Pioneer Work in the Heart of Europe
Study Tour: Silicon Valley
Video and Image Analytics: Digital Eyes on the Rail Assets

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Dte1001

3D Printing

Get a basic understanding of the topic of 3D printing and to show a theoretical and practical way to (one's own) workpiece.

Course content

- General and basic information about 3D printing
- Creation of 3D models with the SketchUp software
- Functionalities of the 3D printer
- Application fields of 3D printing
- Legal framework of 3D printing
- Application of 3D printing by Deutsche Bahn

Duration
4 days

Target group
All

Course level
Fundamental Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Dda5007

AI for Railways: Let Machines Learn for You

Artificial intelligence (AI) offers endless possibilities for rail companies in terms of using data more efficiently, refining processes and developing new business models.

Course content

Rail infrastructures worldwide must be utilized better, whilst still fulfilling stringent quality requirements. This makes the use of artificial intelligence (AI) simply unavoidable. AI is the key factor when it comes to making the railway even more attractive and efficient. Over the coming years, elements of AI will be incorporated into practically every single digital process – e.g. for optimizing maintenance, damage detection and servicing work or for providing passengers with real-time information.

In this course, you will familiarize yourself with current AI technologies and their impacts on and limitations for railways. “Examining exemplary use cases from the railway business, you will review and reflect on processes to classify and use data.

- Current state of technology and limitations of AI
- Impact on technology, work and society
- Difference between data science and artificial intelligence
- AI technologies, neural networks and examples for their usage
- Usage of neural networks to classify data
- The principal of machine learning and deep learning
- Case examples in the rail business

Duration
4 days

Target group
Executives

Course level
Fundamental Training

Type of training
Online or Classroom

Methodology
Lecture

Certification
Attendance Certificate

Dte1003

Basics: Digital Planning & Construction (BIM)

Get a general overview of the 5D/BIM methodology and explains the federal initiative to support the introduction of BIM in the construction sector.

Course content

- Definition of BIM
- Status Quo in Europe and the world
- Coordination and integration in the planning phase
- BIM execution plan
- Project implementation plan
- Information delivery
- Common data environment
- Task information delivery plan
- 4D BIM - Model-based scheduling
- 5D BIM – Model-based estimating and cost control
- BIM data exchange

Duration
4 days

Target group
All

Course level
Fundamental Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Dda1013

Big Data @ Asset Management

Receive a basic understanding of Big Data and get an overview of the process of data analytics. Get insights in the different opportunities, potentials of data solutions as well as concrete best practices and experiences of Deutsche Bahn AG.

Course content

- Introduction of BIG DATA: history, definition, criteria and characteristics of BIG DATA
- Areas of Asset Management: what assets does a railway company has and how can Asset Management be part for achieving strategic and organizational goals
- Asset Life Cycle Management and Asset Management: Begin - Middle and End of Life
- Areas of Application: BIG DATA is not only a buzzword – getting insights of where data can be extracted, processed and simplify daily business (e.g. infrastructure, asset management, control systems, maintenance)
- Big Data Analytics: having data is not the solution – understanding the data is the key
- Digital Transformation and Asset Management: transformation of assets according to IoT, what are “Digital Twins” and how “Predictive Maintenance” transforms the organization

Duration
3 days

Target group
Specialists

Course level
Fundamental Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

Dte5009

Blockchain in the Rail Industry

Blockchain has the potential to fundamentally change how we deal with contracts, transactions and shared data in the rail industry without further need of intermediaries.

Course content

The lack of security is a major shortcoming of the internet: Is this information correct? From where and from whom does it come? Can I trust it? By contrast, the blockchain has only one truth – which everyone involved has agreed on. Each action is documented in a forgery-proof, clearly traceable way. An administrator cannot delete or modify content and the transaction history. Also, you do not need an intermediary such as banks, stockbrokers or other institutions to safeguard processing.

At Deutsche Bahn, the Blockchain team has been developing blockchain technology since 2018 with use cases ranging from multimodal ticketing, logistics supply chains to technical rail operations. In this course, you will learn about the architecture, programming and cryptography of blockchain. Besides reflecting on exemplary use cases from mobility companies, you will collect practical experience in dealing with the technology by creating your own Smart Contract application. In this way, you will deepen your understanding of technology and learn to overcome hurdles in dealing with the new technology.

- Introduction to blockchain technology, cryptography and frameworks
- Use case examples from the Deutsche Bahn Group and other mobility companies
- Hands-on: Setting up your own blockchain
- Structure of smart contracts
- Development of a Smart Contract application

Important!

To ensure a successful participation in this training, the following requirements need to be fulfilled: Basic programing skills (Node.JS and Shell Script are beneficial); Docker knowledge: a Mac, PC or Linux machine (min. 8GB RAM, 20 GB free storage); VM Software (Virtual Box); a good and stable internet connection.

Duration
4 days

Target group
Specialists

Course level
Advanced Training

Type of training
Online or Classroom

Methodology
Lecture

Certification
Attendance Certificate

Dda5010

Chat Bots and Voice Solutions

Voice interaction with computers will fundamentally change how customers and employees at rail companies interact with technology and they allow new digitalization use cases.

Course content

Naturally spoken language is our most common interaction method. In the past, human-machine-interaction was a trope in sci-fi movies – todays, this next level of how we interact with computers has become reality. At the Deutsche Bahn Group, several projects use the potential of voice in human-machine-interactions. Chatbots reduce loads on hotlines and voice assistant plugins help customers with ticket orders. Wearable devices allow data input in areas where the hands of the employees need to be free. A talking, multi-language robotic head and digital avatar provide new ways of customer and employee services.

In this course, you will learn more about the steps taken so far with these innovative and digital solutions, the current state of technology and challenges ahead of us. Furthermore, you will gain inspiration and tips for usage in your own business.

- Introduction and overview of voice in- and output
- Current state of the technology and limitations
- User interaction design for voice dialogues
- Voice interaction for hands-free human-machine-interactions
- Examples from current projects within the Deutsche Bahn Group
- Development of your own chatbot

Duration
4 days

Target group
Specialists

Course level
Fundamental Training

Type of training
Online or Classroom

Methodology
Seminar

Certification
Attendance Certificate

Dte1004

Cloud Solutions: Efficient, Scalable & Secure IT Operation

Understand the benefits of a cloud infrastructure and how it can be implemented. Learn from the experience of the DB Group and adapt it to your own cloud strategy if necessary. Gain a basic understanding of the impact of deploying and operating a cloud infrastructure and what implementation concepts can look like.

Course content

- Temporal changes: from on-site operation to the cloud
  - Advantages and disadvantages
- Flexibility despite standardization
  - Efficient scalable IT operation
- Security despite Cloud
  - Compliance with all safety requirements and regulations
- Procedure models
  - Optimized approaches for different requirements
- Dimensions of a cloud operation
- Best practices
  - How has the DB Group managed and mastered the challenges?

Requirements

This training requires basic knowledge as a prerequisite.

Duration
3 days

Target group
Specialists

Course level
Fundamental Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Dte5003

Core Technologies of Digital Railways I

This course explains the core technologies as the basis for connected rail and mobility companies in the digital age.

Course content

Several technologies and concepts build form the basis for the age of connected digital mobility. Computing power is continuously increasing and available everywhere, data-driven solutions are changing decision making, information is being stored in a decentralized and tamper-proof manner, and machines are starting to learn and work for us.

In this course, we will go on a round trip and look at the various technologies that form the foundation of a digital rail company. Digital companies without their own data center, connected with ever-faster wireless connections that provide internet at your fingertips and in faraway located areas; digital contracts that are stored decentrally and secured against manipulation – all these things and more change our business of tomorrow. You will learn about example cases from the Deutsche Bahn Group and other rail companies as well as have time to reflect on sample scenarios for your own company.

- Blockchain
- Cloud
- Internet of Things and Connectivity
- Big Data & Artificial Intelligence
- Example cases of the Deutsche Bahn Group
- Scenarios for usage in your company

Duration
4 days

Target group
Specialists

Course level
Fundamental Training

Type of training
Online or Classroom

Methodology
Seminar

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Dte5004

Core Technologies of Digital Railways II

Learn about the core tools and aspects influencing your employees and how they work together as the basis for connected rail and mobility companies in the digital age.

Course content

Beyond the core technologies of the age of connected digital mobility, there are more aspects which influence our employees as well as customers. The office workplace as well as a workplace in operations changes due to digitalization, augmented reality enhances your field of view, and virtual reality enables the simulation of situations before they exist. In addition, since rail companies provide a public infrastructure, they attract the focus of malicious “friends”.

In this course, you will familiarize yourself with important tools and aspects, learning how this influence and affect business and working together in the digital age. You will examine example cases of the Deutsche Bahn Group and other rail companies as well as have time to reflect on sample scenarios for your own company.

- Digital Workplace and digital collaboration to speed up your processes
- Workflow automation for reoccurring tasks to focus on important tasks
- Mixed reality: Augmented and virtual realities change human machine interaction
- Cyber security for rail companies
- Example cases of the Deutsche Bahn Group
- Scenarios for usage in your company

Duration
3 days

Target group
Specialists

Course level
Fundamental Training

Type of training
Online or Classroom

Methodology
Seminar

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Dda1005

Data Solutions: Finding Hidden Treasures In Your Data

Learn how to make the most of their existing data and exploit the potential for their company. Learn from the experience of the DB Group and adapt it to your own data strategy if necessary. Gain a fundamental understanding of the effects of introducing and operating an intelligent data architecture.

Course content

- What does data have to do with treasures?
- How can data be used to improve your business?
- Methods and procedures to collect and analyze data
- What lies behind big data
- Getting to know and understand the big picture of big data
- Best practices
- How does the DB Group use data to improve their business and how did we find their treasures?

Requirements

This training requires basic knowledge as a prerequisite.

Duration
4-5 days

Target group
Specialists & Executives

Course level
Advanced Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

Dte1015

Deployment of Drones

Receive information on the use of drones for the detection of safety deficiencies on railroad systems, for construction documentation as well as infrared images for the inspection of e.g. overhead contact line systems.

Course content

- Insight into the fascinating possibilities of data use
- Possible applications in the infrastructure sector
- What can the drone do in terms of digitalization?
- General legal situation in Germany and Europe - overview based on practical examples
- Application cases and use cases: comprehensive insight into the possibilities of data use
- Why site inspections, local knowledge and evidence gathering could soon be a thing of the past
- Site-visit: live demonstration of the drone

Duration
1 day

Target group
Newcomers

Course level
Fundamental Training

Type of training
Single

Methodology
Seminar

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Ddb1006

Design Thinking & Meeting Efficiency

Develop a deep understanding of the potential that can be tapped through well-structured meetings. In order to tap this potential, you will be able to prepare, conduct, moderate and monitor meetings efficiently and purposefully.

Course content

- Role and self-image as an MX agent
- Work phases in meetings
- Developing content and results in meetings in a targeted and solution-oriented manner
- Using media sensibly in meetings
- Prioritization tools
- Successful decision-making in meetings
- Documentation of meetings
- Active implementation using meeting examples
- Design Thinking Approach: Tools & Methodologies - application to Deutsche Bahn

Duration
4 days

Target group
All

Course level
Fundamental Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Ddb5001

Digital Customer Experience for Railways

Digitalization changes the services that rail companies can provide to their customers as well as the way customers interact with the company and their services.

Course content

More and more people own smartphones and have the endless possibilities of the digital age always with them. Therefore, it changes how people expect digital services to work from a customer point of view as well as the employees' point of view. It also enables new services, which blur the boundaries between rail, public transport and taxi services, thus allowing more people to travel without their own car. We are also seeing first trends that will come after the age of smartphones: digital avatars speaking and understanding several languages, devices you wear on your body to keep your hands free, voice-based human-machine-interaction and Augmented Reality and Virtual Reality.

In this course, you will familiarize yourself with important technologies, business models and new services for digital customer experiences. Besides examining example cases of the Deutsche Bahn Group and other rail companies, you will have time to reflect on example scenarios for your own company.

- New digital services with ridesharing and autonomous vehicles
- Mobile applications everywhere
- Digital services onboard and at stations
- New user interfaces: voice, chatbots, avatar systems
- Wearables bring technology to workplaces where you need to be hands-free
- Example cases of the Deutsche Bahn Group
- Scenarios for usage in your company

Duration
3 days

Target group
Specialists

Course level
Fundamental Training

Type of training
Online or Classroom

Methodology
Seminar

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Ddb1007

Digital Innovations: Creativity to be Successful & Competitive

Learn how to be innovative and improve your business through agile, creative methods. Learn from the experience of the DB Group and adapt it to your own strategy if necessary. In addition, form a fundamental understanding of the effects of using agile, creative and innovative methods.

Course content

- What does digital innovations have to do with success?
- Can a company in times of digitalization afford not to be innovative?
- How could you encourage the creativity (of your employees) to be more successful?
- Methods and procedures to encourage creativity
- Prototyping? Mvp? Poc?
  - What does this mean and how can those methods help you?
- Best practices
  - How does the DB Group use digital innovations?
  - D.Lab and Skydeck – creative spaces to be innovative and successful
  - Outcomes from the creative spaces

Requirements

This training requires basic knowledge as a prerequisite.

Duration
4-5 days

Target group
Specialists & Executives

Course level
Advanced Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

*For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Ddb5015

Digital Logistics

Learn the newest about Digital Logistics and its end-to-end automation in inventory, orders, and shipments across the supply chain. In logistics, the network-based nature of the industry provides a natural framework for implementing and scaling digital solutions, amplifying the human components of highly organized global supply chains. The success-key is here to identify and manage a digital portfolio for a real logistic evolution

Course content

- How is digital logistics different from traditional logistics?
- The importance of a Logistic Digital Radar.
- Building a robust internal digital foundation for logistic.
- Logistic Network or Eco-System Design.
- The meaning of Robotics/RPA in the logistic.
- Understanding artificial intelligence and its learning cycle.
- Artificial intelligence use cases in logistics.
- Predictive logistics.
- AI skills and teams for logistics.

Requirements

Basic knowledge in the field of Logistics. Basic knowledge in the field of traction current supply.

Duration
3 days

Target group
Specialists & Executives

Course level
Fundamental Training

Type of training
Online or Classroom

Methodology
Seminar

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Ddb5013

Digital Rail Manager

The program guides you through the main topics of the digitalization of the rail industry and the possible changes in operation, maintenance and interaction with customers.

Course content

Digitalization is here to stay and will fundamentally change the rail, logistics and mobility sector as boundaries between sectors disappear and new players enter the market. Knowledge about the chances and possibilities of digitalization is no longer only the task of the IT-department, but a generic understanding is now also needed in every management position.

This program will help you understand the influence of digitalization aspects on management decisions: The most important aspects of each of the basic areas of digitalization in the mobility sector will be highlighted by introducing the state of technology, use cases and common misconceptions. This new perspective focuses on the direct transfer of knowledge of DB consultants who have proven to be successful in digitalization projects for the mobility and railways industry.

- Rail companies in the digital age
- Core technologies of digital railways I
- Core technologies of digital railways II
- Digitalization of rail assets
- Digital customer experiences for railways
- Digital customer experiences for railways
- Assessment

Requirements

Professional experience of a minimum of 3-5 years in the transport sector; current position as a decision maker in a transport company, governmental entity or other organization related to transportation.

Minimum attendance of 80% and completion of assessment required.

Duration
20 days

Target group
Executives

Course level
Fundamental Training

Type of training
Online or Classroom

Methodology
Program

Certification
International Certification

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Ddb1008

Digital Transformation: Staying Successful & Competitive

Learn how to face digital challenges and will be introduced to innovative and creative methods. Learn from the experience of the DB Group and adapt it to your own transformation strategy if necessary. Learn innovative and creative methods to face the challenges.

Course content

- What does digital transformation have to do with success?
- Why is a digital transformation necessary to stay competitive?
- Can a company in times of digitalization afford not to have digital transformation?
- What is needed to be prepared for a digital transformation?
- Finding the right methods for your digital transformation
- Best practices
  - How did the digital transformation work within the DB Group?
  - Outcomes after the digital transformation

Requirements

This training requires basic knowledge as a prerequisite.

Duration
4-5 days

Target group
Specialists & Executives

Course level
Advanced Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

*For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Ddb1009

Digital Workplace: Innovative Digital Workplaces

See what a digital workplace could look like and how you can integrate it into your (IT) infrastructure. Learn from the experience of the DB Group and adapt it to your own strategy if necessary. Learn a basic understanding of what a digital workplace could look like and how it could be integrated into their (IT) infrastructure.

Course content

- What does digital workplaces have to do with the happiness of employees?
- How can digital workplaces support you to be more efficient and successful?
- Can a company in times of digitalization afford not to have digital workplaces?
- Desk sharing and flex at work
  - Reducing workplace and -space costs
  - More flexibly for employees implies more satisfaction
- Best practices
  - How does the DB Group use digital workplaces?
  - Outcomes from the implementation of digital workplaces

Requirements

This training requires basic knowledge as a prerequisite.

Duration
4-5 days

Target group
Specialists & Executives

Course level
Advanced Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Dte5005

Digitalization of Rail Assets

Sensors, smart infrastructure and digital tools help gain more efficiency in the hardware assets of the rail industry and provide a better service to the customers.

Course content

Rolling stock, infrastructure and technical systems are becoming more and more intelligent and connected, thus increasing the speed, efficiency and reliability of railway service. Cameras and microphones help us detect defects before they cause bigger problems. The collected data from all those inputs can be analyzed to predict future occurrences and hotspots. And it can also be used in real time to monitor positions of goods. The resulting data can be used effectively and enables rail companies to become faster, more efficient and reliable in their service. New digital systems to monitor and steer rail infrastructure are changing concepts that have been in place for 100 and more years. Trains are beginning to drive on their own, even in free networks rather than just in closed subways or DLR systems.

In this course, you will take a closer look at how real applications of the core technologies of digital rail companies work. Cameras and microphones detect future defects. Smart goods, wagons or spare parts send data and enable deep analyses. Track infrastructure is observed in real time and locomotives run automated without a driver. Spare parts are printed as they are needed. Blockchain is used to steer switches, signals and gates. Besides examining example cases of the Deutsche Bahn Group and other rail companies, you will also have time to reflect on sample scenarios for your own company.

- Optical and acoustic infrastructure monitoring
- Data as an asset: Analytics, big data and machine learning
- Smart infrastructure: Switch monitoring, smart scotch blocks
- Digitalized maintenance
- Automated and autonomous driving
- Blockchain for steering infrastructure
- Example cases of the Deutsche Bahn Group
- Scenarios for usage in your company

Duration
4 days

Target group
Specialists

Course level
Fundamental Training

Type of training
Online or Classroom

Methodology
Seminar

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Ddb5002

Foster Digital Innovation at Your Rail Company

Digitalization needs a fast and effective innovation process to evaluate new business models and integrate employees and their creative power into projects and business.

Course content

New digital ideas evolve faster than it takes to write a business plan with hundreds of pages - and by the time the writing is done, technology and requirements might have changed yet again. Therefore, we need to develop digital ideas in a quicker, more agile way, especially when we can imagine how the idea will turn out but have no clear picture of the obstacles and technology changes we will face in development. In addition, new ways of business partnering with startup companies, hackers or third-party companies arise and create new opportunities for solutions.

In this course, you will gain an overview of the so-called agile or iterative management and mindset as well as methods for a quick development and testing of business model ideas. Through examples, you will learn more about why working with hackers and publishing non-critical business data on open digital platforms can help create new ideas, and how your own employees can be empowered to follow their ideas for new services. Furthermore, you will gain insights into sample cases from the Deutsche Bahn Group and other rail companies as well as have time to reflect on example scenarios for your own company.

- Agile mindset and iterating to your goal
- Design thinking & lean startup
- Scrum, Enterprise Kanban
- Intrapreneurship
- Hackathons an open data
- Case examples of the Deutsche Bahn Group and other rail companies
- Scenarios for usage in your

Duration
2 days

Target group
Specialists

Course level
Fundamental Training

Type of training
Online or Classroom

Methodology
Seminar

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Dte1010

Immersive Technology for Railways

Get to know the possibilities and applications of virtual realities. Learn from the DB Group's experience and adapt it to your own strategy. You will also gain a basic understanding of the different types of virtual reality and how to use them effectively for your business needs.

Course content

- How does virtual reality influence the reality?
- How can virtual reality supports you to be more efficient and successful?
- Can a company in times of digitalization afford not to use virtual reality?
- VR? AR?
  - What does this stand for?
  - Differences and possible uses
- How VR can be used for training purposes
  - Practical training even without the availability of real learning objects
  - Time and cost savings due to reduced need for real learning objects and avoidance of travel
  - Risk-free training of safety-critical situations
- How AR can be used to reduce maintenance costs
- How virtual realities can be used to increase costumer/passenger satisfaction
- Virtual realities know no hardware limits
  - Use of glasses, smartphones, tablets, ...
- Best practices
  - How does the DB Group use virtual reality?
  - Outcomes of using virtual reality

Requirements

This training requires basic knowledge as a prerequisite.

Duration
4-5 days

Target group
Specialists & Executives

Course level
Advanced Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Dte5012

Immersive Technology for Railways: Different Realities to Increase Efficiency

Immersive technologies extend your physical reality in the rail industry – users either dive into a virtual reality or extend their field of view with a mixture of analog and digital elements.

Course content

Digitalization is progressing faster and faster - virtual realities are becoming more and more realistic and are also available at your fingertips and through eyesight. They are beginning to influence today's world of work and how humans interact with machines: Travelers can obtain additional information about the train they are looking at, maintenance engineers can see additional instructions right at the place of work and trainees can learn about situations in trains that are not yet built. Dangerous situations can be trained without putting your employees at risk.

In our course, we will show you the possibilities and applications of virtual and mixed realities in mobility solutions, the current status of technology and deploy a small augmented reality application to your mobile device. In this way, you will deepen your understanding of the technology and learn more about how to overcome hurdles in dealing with the new technology.

- Introduction and overview of augmented and virtual reality
- Usage of virtual reality for training purposes
- Usage of augmented reality to increase efficiency in maintenance
- How mixed realities can be used to increase customer/passenger satisfaction
- Interface design in mixed reality
- Best practices and current limitations

Requirements

Basic programing skills (Android Java/Kotlin are beneficial); Docker knowledge; A Mac, PC or Linux machine (min. 8GB RAM, 20 GB free storage); An Android device with support for ARCore; VM Software (Virtual Box); A good and stable internet connection

Duration
4 days

Target group
Specialists

Course level
Fundamental Training

Type of training
Online or Classroom

Methodology
Seminar

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Dte1011

Internet Of Things (IoT)

See the possibilities and applications of using an IoT environment. Learn from the experience of the DB Group and adapt it to their own strategy if necessary. In addition, gain a basic understanding of IoT and how it can be used efficiently for your business needs.

Course content

- Time changes: the path from exclusive to shared environments
- Can a company in times of digitalization afford not to use an IoT environment?
- How can an IoT environment supports you to be more efficient and successful?
- How can an IoT environment can be used for your maintenance and how does it helps you to predict issues?
- Integration of an IoT environment in your existing (IT) infrastructure
- Use of your exisiting video surveillance
- Use of acoustics to detect anomalies at an early stage in order to avoid failures of technical installations
- Best practices
- How does the DB Group use an IoT environment?
- Outcomes of using an IoT environment

Requirements

This training requires basic knowledge as a prerequisite.

Duration
4-5 days

Target group
Specialists & Executives

Course level
Advanced Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Dte5019

Internet of Things (IoT): Shared Environment for Increasing Predictive Maintenance and Smarter Mobility

See the possibilities and applications of using an IoT environment. Learn from the experience of the DB Group and adapt it to your own strategy if necessary. In addition, gain a basic understanding of IoT and how it can be used efficiently for your business needs.

Course content

- Time changes: the path from exclusive to shared environments
- Can a company in times of digitalization afford not to use an IoT environment?
- How can an IoT environment enable operators to be more efficient and successful?
- How can an IoT environment be used for maintenance and how does it helps you to predict problems?
- Integration of an IoT environment in your existing (IT) infrastructure
- Use of existing video surveillance
- Use of acoustics to detect anomalies at an early stage in order to avoid failures of technical installations
- Best practices
- How does the DB Group use an IoT environment with special focus in predictive maintenance?

Requirements

This training requires basic knowledge as a prerequisite.

Duration
2 days

Target group
Specialists & Executives

Course level
Fundamental Training

Type of training
Online or Classroom

Methodology
Seminar

Certification
Attendance Certificate

*For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Dda5011

Internet of Things: Making Rail Companies Smarter

Rolling stock, infrastructure and technical systems are becoming more and more intelligent and connected and thus increase the speed, efficiency and reliability of railway service.

Course content

The Internet of Things offers new fields of digitalization in your rail company: Vehicles are becoming more and more intelligent through the use of sensors, telling their status, their operating grade or if they need maintenance. Some of those sensors are even independent from electricity sources, thus creating endless possibilities to smarten up existing assets from times long before the start of digitalization or in far remote places. The resulting data can be used efficiently and enable rail companies to become faster, more efficient and reliable in their service.

In this course, you will learn how digital twins of your assets help with your maintenance or to predict future defects. You will examine use cases from mobility companies and collect practical experience in dealing with the technology by setting up your own sensor dashboard. This way, you will deepen your understanding of technology and learn more about how to overcome hurdles in dealing with the new technology.

- Introduction to sensor technology, communication technologies and frameworks
- Use case examples from DB and other mobility companies
- Advantages and limitations of the different technologies
- How to scale in big asset driven companies
- Hands-on: Setting up your own data dashboard with sensor data

Requirements

Basic programing skills (Node.JS is beneficial); Docker knowledge; A Mac, PC or Linux machine (min. 8GB RAM, 20 GB free storage); VM Software (Virtual Box); A good and stable internet connection

Duration
4 days

Target group
Specialists

Course level
Fundamental Training

Type of training
Online or Classroom

Methodology
Seminar

Certification
Attendance Certificate

Ddb5014

Lean Versus Agile Management in Passenger Transport

In passenger transport, there are different types of work to be done where lean or agile methodology can be applied. The right choice of method is key to customer satisfaction.

Course content

Digitalization is one of the megatrends and innovation drivers of the 21st century, and by developing a digitalization approach and implementing the right methods and tools, companies can respond to ever-changing market conditions and customer needs. Lean and Agile Management both aim to satisfy the customer needs as quickly as possible. But which method is the right one to use considering the aim to be achieved and the people involved in the work to be done?

This course provides you with a comprehensive knowledge of the lean and the agile methodology. It will enable you to distinguish between different types of projects and it will enable you to choose the right methodology to apply to the project work. You will discover that basic principals and tools can even be used in everyday life. Based on practical examples of Deutsche Bahn, this course aids you to deal professionally with a wide range of situations and challenges.

- Basics about principals and values in Lean and Agile Management
- Tools like TIM WOOD, Kanban
- Practical exercises using key tools
- New trends and truths about the application of the knowledge
- Insights into Deutsche Bahn Group examples

Duration
2 days

Target group
Specialists

Course level
Fundamental Training

Type of training
Online or Classroom

Methodology
Seminar

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Ddb5006

Rail Companies in the Digital Age

Knowledge of global technological and societal trends related to digitalization helps mobility companies understand challenges for their business model as well as current ways of working.

Course content

Digitalization is here to stay. Mobility companies worldwide are facing changes in their technology as well as the ways customers interact with them and what they expect from them. Also, new players are entering the market with new services, different business models and smart and modern assets. This brings up the question: Will rail companies of the future still focus on rail?

In this course, you will start with a self-reflection about you and your company in terms of the age of digitalization, and which challenges you are currently facing. You will learn about the global technological and societal trends related to digitalization and examine how these challenge mobility companies in their business model as well as their current ways of working. Furthermore, there will be a focus on the aspects of the VUCA-World* and which challenges it provides for strategy and leadership within a company.

- Self-reflection: Where does our company stand in the age of digitalization?
- Identify challenges
- Digital trends in the mobility market
- Societal trends related to mobility
- Changes in business models in the mobility market
- Impact on strategy, leadership and cooperation

*VUCA = Volatility, Uncertainty, Complexity and Ambiguity

Duration
3 days

Target group
Specialists

Course level
Fundamental Training

Type of training
Online or Classroom

Methodology
Seminar

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Ddb1012

Remote Management

Learn how to master the challenges of virtual collaboration and how to learn and apply different communication techniques.

Course content

- Know the benefits and challenges of virtual teams
- Understanding the development phases of a virtual team
- Appropriate forms of communication when leading from a distance
- Self-perception and self-image as a manager
- Success through building trust
- Collegial case counseling

Duration
4 days

Target group
All

Course level
Fundamental Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Dem5016

Smart Mobility for Rail: Improving First/Last Mile Connectivity

People developing a better understanding of current disruptive trends in the mobility market focusing on first/last mile connectivity, intermodal hubs and urban logistics in the rail sector. International best practices of on-demand shared and pooled mobility services in the rail travel chain and distribution channels are presented. With this training you will learn about how passenger experience and ridership can be improved through optimizing door-to-door connectivity, developing stations as multi-modal mobility hubs as well as enabling journey planning and booking through seamless mobility apps.

Course content

- Overview of disruptive trends in the mobility market and development of Smart Mobility services
- Impact of digitalization, technological developments, changing customer expectations on the rail sector
- Possible solutions for the increasingly important first/last mile connectivity (shared mobility, demand responsive transport, ride-pooling, autonomous shuttles)
- Benefits of different operation models for shared vehicle fleets
- Drawing conclusions from data to find the most promising use cases for demand responsive transport
- Improving the user experience and the benefits for different stakeholder groups by digitally enabling integrated ticketing, mobility-as-a-service (MaaS) schemes and seamless multi-modal mobility apps
- Outlook on potential future technologies such as cargo drones, air taxis and Hyperloop
- Developing stations as intermodal mobility and logistics hubs including charging infrastructure for e-mobility and new services such as co-working spaces or smart lockers
- Addressing the traffic problems induced by increased e-commerce with innovative urban logistic solutions connected to urban rail infrastructure
- The training will be alternating between lectures, group discussions and hands-on exercises strengthening the understanding of the topics and allowing the practical use of the learnings after the training.

Duration
4 days

Target group
All

Course level
Fundamental Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Dte5017

Study Tour: Pioneer Work in the Heart of Europe

Enhance your knowledge knowing how Innovative Technology Factories, Labs and Research Centers inside the Industry and business work like pioneers. Five days immersion program in Germany (Berlin, Frankfurt, Munich, Stuttgart and Köln). Train your talents and high-potentials in one of the best Innovation Environment for research and development, middle in the heart of Europe.

Course content

- Welcome event in Frankfurt am Main
- Introduction to the European Innovation Eco-System
- Understanding how the Eco-System works
- The EU Innovation Council and its investors group
- Capabilities for innovation, current situation in Europe
- Introduction to new methodologies and frameworks like Scrum and Agile for disruptive technologies projects
- Visit some research and development labs and technology factories, which are executing pioneer work in different German cities
- Visit the DB Digital House and discussion with some of its authorities
- Meeting with German deputies, responsible Committee for Artificial Intelligence

Duration
5 days

Target group
Specialists & Executives

Course level
Fundamental Training

Type of training
Study Tour

Methodology
Study Tour

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Dte5018

Study Tour: Silicon Valley

Enhance your capabilities knowing and understanding better disruptive technologies and emerging trends inside Silicon Valley Eco-System. Two weeks immersion program in the Silicon Valley "Eco-System".

Course content

- Welcome event in San Francisco
- Introduction to Silicon Valley Eco-system at Plug & Play
- Meeting with authorities of Plug & Play
- Meetings with start ups and entrepreneurs
- Understanding an Eco-System
- Workshop "Ready for Innovation"
- Introduction to the methodology and framework
- Capabilities for innovation
- What is really Smart Data and how it can be used in business. Analysis and prediction to create value and the contribution of artificial intelligence.
- Trying a venture
- Visit firms in Silicon Valley and San Francisco. (Google, Facebook, Intel, Airbnb, Apple, etc.)
- Universities' visits and discussions with professionals of the Universities of Stanford and /or Berkeley
- Visiting The Tech Museum in San Jose and the Ames Research Center in Moffett Field
- Wine degustation in Napa and networking event

Duration
8 days

Target group
Newcomers

Course level
Fundamental Training

Type of training
Study Tour

Methodology
Study Tour

Certification
Attendance Certificate

*For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Dda5008

Video and Image Analytics: Digital Eyes on the Rail Assets

Our eyes cannot permanently check the status of all trains or infrastructure – automatic video and image analytics help us to gain efficient comprehensive monitoring.

Course content

Deutsche Bahn has wide track networks, large numbers of stations and other facilities as well as a huge amount of rolling stock. This makes it difficult to have our eyes on everything everywhere at the same time. Meanwhile, fixed maintenance or cleaning schedules are ineffective and not very flexible. Hence, the automatic analyzation of video and image streams allows us to schedule maintenance more flexibly, clean rolling stock when needed, or detect defects before they cause problems. As a consequence, we can provide a better, faster and more reliable service to our rail customers.

In this course, you will benefit from example use cases from mobility companies and collect practical experience in dealing with the technology by setting up and training your own image analytics application. In this way, you will not only deepen your understanding of the technology, but also learn how to overcome hurdles when dealing with it.

- Introduction to image and video analytics
- Current state of technology and limitations
- Difference to other AI technologies and neural networks
- Use case examples from the Deutsche Bahn Group and other mobility companies
- Setup and training of an image analytics service

Requirements

Basic programing skills; Docker knowledge; A Mac, PC or Linux machine (min. 8GB RAM, 20 GB free storage, high performance graphics module); VM Software (Virtual Box); A good and stable internet connection

Duration
4 days

Target group
Specialists

Course level
Fundamental Training

Type of training
Online or Classroom

Methodology
Seminar

Certification
Attendance Certificate

07

Public Transport

The worldwide need for affordable and high-quality public transport is on the rise: According to a report issued by the International Energy Agency, passenger transport volumes are expected to double by the year 2050[1].

This future expansion of public transport is convenient for customers and it also offers decisive advantages from the point of view of sustainability: Not only is it much more energy-efficient than individual transport, but it also contributes to reducing CO2 emissions as well as air pollution. This last point seems more important when one considers that the transport sector is currently responsible for ca. 25 per cent of global CO2 emissions resulting from fuel combustion [ibid.].

As one of the biggest mobility providers in the world, Deutsche Bahn has longstanding experience with transport planning across all transport modes. Thus, DB does not only operate a large rail-based passenger transport network, but also owns a bus fleet comprising more than 25,000 vehicles.

[1] Source: International Energy Agency: The Future of Rail. Opportunities for Energy and the Environment – Summary, January 2019

Back to all categories

COURSES

Public Transport

Autonomous Bus Services – Planning and Operation
Bus Drivers Initial Training
Bus Service Delivery Module
Bus Transport - Conception and Planning
Bus Transport – Marketing and Communication
Bus Transport – Operation
Bus Transport – Planning/Preparation of Operation
Bus Transportation Sharing – Planning and Operation
Certification as Traffic System Expert
Contracting Out of Transport Services
Electric Bus Services – Planning and Operation
Introduction to Passenger Transport Services Module
On-Demand-Mobility & Sharing– Planning and Operation
Strategic Transport Planning
Sustainable Solutions for Rural Public Transport
Technology and Trends in Innovation - Transport Systems
Tender or Not to Tender – Governance of Urban and Regional Bus Networks
The Transport Regulatory Framework
Transport Planning and Design
Transport Policy and Legislation
Transport Sustainability Module
Understanding Transport Demand Module
Understanding Travel Behavior - Transport Policy and Planning
Vehicles & Management
Workshop: How to Govern Smart Mobility Services

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Bto1001

Autonomous Bus Services – Planning and Operation

Understand core processes of introducing autonomous bus-services as part of public transport. Lear the principles of autonomous bus-services.

Course content

- Background and challenges of introducing an autonomous bus services in public transport
  - Technology: state of the art
  - Best practices
  - Functionality and technology
  - Opportunities and risks
  - Requirements on certification, safety, admission
- Planning an autonomous bus service in public transport
  - Necessary data
  - Site selection
  - Stakeholder management
  - Admission
  - Certification
- Details and examples of specific requirements on autonomous bus services
  - Infrastructure, safety, vehicles and maintenance
- Details and examples of specific requirements on autonomous bus services
  - Fleet management, routing, scheduling and training needs
- Operating an autonomous bus service in public transport
  - Specific processes
  - Influence of external parameters
  - Marketing and public relations
  - Managing and enhancing reliability

Duration
4 days

Target group
Newcomers

Course level
Fundamental Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Bto1002

Bus Drivers Initial Training

Become a bus driver by learning theoretical fundamentals and practice trainings.

Course content

- Certification of competencies in accordance with publically regulated level of qualification (e.g. EC directive 2003/59/EC)
- Basic qualification (for young professionals)
- Accelerated basic qualification
- 10 hours practical training
- Test according to DIRECTIVE 2003/59/EC
- 140h (accelerated) - 184 h

Duration
5 days

Target group
Newcomers

Course level
Fundamental Training

Type of training
Single

Methodology
Seminar

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Bto1003

Bus Service Delivery Module

Understand the concept of the Service Delivery Framework (SDF) and understand how service workflows can be improved.

Course content

- Using the concept of a service delivery framework (SDF) to define the principals, standards, guidelines, and requirements for planning, developing, deploying, operating, and decommissioning services
- Service Delivery accountability within the organization
- Service Level management, - Level Agreements
- Integrate quality into the process
- Measuring service delivery – internal and external measures to be used
- Gathering data and feedback from the end user
- How can performance be improved through process mapping and understanding of the workflow?

Duration
3 days

Target group
Newcomers & Executives

Course level
Fundamental Training

Type of training
Single

Methodology
Seminar

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Bpl1004

Bus Transport - Conception and Planning

Understand the background and challenges of planning public transport services, taking into account the needs of customers and stakeholders. Build an understanding of the basic principals of public transport service and network design and planning.

Course content

- Background and challenges in public transport planning
  - Dimensions of public transport (types, operation, regulations, impact, context, etc.)
- Planning tools and methods
  - Using planning tools (choice, features, applications, etc.)
- Starting a planning process
  - Project overview; Building up basic data; Data survey
- Planning and participation
  - Different ways of participation (chances and risks)
  - Collect and inform data; Data treatment; Data analysis
- Stakeholder management in a planning process
  - Identification and evaluation of stakeholders
  - Managing stakeholders during the planning process
- Planning public transport services and networks
  - Site assessment, choice of parameters
  - Demand-driven planning and supply-driven planning
  - Assessment of costs and benefits with regards of public/company needs and strategies

Duration
4 days

Target group
Newcomers

Course level
Fundamental Training

Type of training
Single

Methodology
Seminar

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Bts1005

Bus Transport – Marketing and Communication

Understand the challenges and opportunities of communication and marketing in public transport with a focus on the introduction phase. Know the principals of communication and marketing in public transport.

Course content

- Background and challenges of communication and marketing in the field of public transport
  - Limits and possibilities
  - Aims
  - Channels
- Customer orientation: user groups and their needs
  - Identification of user groups
  - Valuation of user groups
  - Analyzing needs and conditions
- How to reach customers through marketing/communication channels
  - Identification of channels
  - Valuation of channels
  - Choice of channels and building an optimum set of channels
- Advertising medium and sales
  - Different media
  - Grounding of designing, texting and layout
- Evaluation of marketing
  - Evaluation of marketing activities in terms of effectiveness and reach
  - Optimizing marketing activities

Duration
3 days

Target group
Newcomers & Executives

Course level
Fundamental Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Bto1006

Bus Transport – Operation

Understand the core processes of transport operations as a full-service provider. Knowing the principals of transport operation.

Course content

- Service elements of a transport company
- Fleet management
  - Human resources, payment, sales, daily operation, costumer relations and safety aspects
  - Scheduling, maintenance and servicing
- Dispose drivers and operational staff
  - Schedules
  - Payment and regulation
  - Optimization
- Integration of other TOs as contractors (regulations, possibilities & risks, optimization)
- Fare revenues
  - Payment channels
  - Accounting
  - Revenue breakdown

Duration
4 days

Target group
Newcomers & Executives

Course level
Fundamental Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Bpl1007

Bus Transport – Planning/Preparation of Operation

Understand the core processes of introducing transport operations (preparation, staffing, qualification, planning, rostering). Learn about the principals governing the introduction of public transport services and networks.

Course content

- Background and challenges in introducing public transport
  - Dimensions of public transport (types, operation, regulations, impact, context, etc.)
- Creating an operation concept
  - Implementation of upstream planning concepts
  - Operation concept: mode, vehicles, routes
  - Maintenance, cleaning and refuel
- Infrastructure planning and implementation (depot, stops and IT)
- Human resource planning (scale, qualification, sourcing, scheduling and training)
- Rostering in public transport
  - Building up initial routing
  - Consideration of schedules and timetables
  - Optimizing costs/effort in operation

Duration
4 days

Target group
Newcomers & Executives

Course level
Fundamental Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Bpl1012

Bus Transportation Sharing – Planning and Operation

Understand core processes of introducing sharing services as part of public transport. Learn the principles of sharing-mobility.

Course content

- Background and challenges of introducing sharing-services in public transport
  - Modes of sharing
  - Functionality and technology
  - Opportunities and risks
  - Best practices
- Planning a sharing-service as part of public transport
  - Necessary data
  - Site selection
  - Participation process
  - Useful tools
  - Planning process
  - Field tests
  - Stakeholder management
- Operating a sharing-service as part of public transport
  - Specific-software
  - Frontend and backend hard-/software
  - Specific marketing requirements
  - Cost-calculation and –optimization
  - Fleet-management
  - Intermodal solutions

Duration
3 days

Target group
Newcomers

Course level
Fundamental Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Voc1006

Certification as Traffic System Expert

Get familiar with the rail system (+ fundamentals) and the transport systems.

Course content

- Development of the concept of system engineering and integration
- Interfaces between the components of system engineering and system integration
- Interactions between (sub) systems and between systems and their environments
- Systems design as a process
- Assess the impact of human behavior on system performance
- Developing a concept of a rail system (system boundaries, operational conditions and operational constraints)
- Overview of the design parameters of a railway (objectives, key concept and planning process)
- Light vs. heavy rail
- Understanding the Capacity Improvement System:
  - Parameters of capacity
  - Capacity Research
  - Interdependencies and challenges

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Bts1008

Contracting Out of Transport Services

Understand the process of signing the contract and the development of offers for suppliers and third parties.

Course content

- Defining the organization's core competencies
- The difference between core and non-core business processes
- How to assess the potential benefits, costs, disadvantages, risks, and legal/ethical implications of outsourcing non-core processes
- How to make a detailed and convincing business case for outsourcing non-core processes
- How to address the potential human resource implications of outsourcing, redeployment, training and development and cultural issues
- Initial overview of the out-sourcing process from tendering through to contract handover
- How to scope what would be outsourced
- Developing an Invitation to tender specifications that balances cost, quality, time and service delivery
- How to evaluate potential vendors, including the use of relevant vendor rating systems
- The importance of inviting potential vendors to tender against a clear specification of your requirements
- Negotiation and agreement of a legally binding outsourcing contract & what should be included in the contract
- The importance of working closely with the vendor during transfer
- Risks and emerging problems when transferring business processes
- Importance of reviewing the outsourcing arrangement

Duration
4 days

Target group
Newcomers & Executives

Course level
Fundamental Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Bpl1009

Electric Bus Services – Planning and Operation

Understand core processes of introducing electric bus-services as part of public transport. Knowing the principals of electric bus-services.

Course content

- Background and challenges of introducing an electric bus services in public transport
  - Technology: State of the art
  - Best practices
  - Functionality and technology
  - Opportunities and risks
  - Requirements on routing, scheduling and other operational processes
- Planning an electric bus service in public transport
  - Necessary data
  - Site selection
  - Useful tools
  - Stakeholder management
- Details and examples of specific requirements on electric bus services
  - Infrastructure, charging, vehicles and maintenance
- Details and examples of specific requirements on electric bus services
  - Fleet management, routing, scheduling and training needs
- Operating an electric bus service in public transport
  - Specific processes
  - Influence of external parameters
  - Optimizing costs in operation term
  - Managing and enhancing reliability

Duration
4 days

Target group
Newcomers

Course level
Fundamental Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Bts1010

Introduction to Passenger Transport Services Module

Understand the transport requirements and their differences as well as their influence on the transport sector.

Course content

- Overview of the geographic, demographic and cultural aspects of the region that affect the provision of integrated transport services
- Overview of services offered for buses, intercity buses, ferries, water taxis and taxis
- Overview of the challenges and opportunities in relation to each mode of transport
- Customer patronage by mode of transport
- Strategic challenges now and for the future e.g. sustainability, environmental, innovation and technology

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Bpl1011

On-Demand-Mobility & Sharing– Planning and Operation

Understand core processes of introducing on-demand- & sharing services as part of public transport. Knowing the principles of on-demand- & sharing mobility.

Course content

- Background and challenges of introducing on-demand & sharing services in public transport
  - Modes of sharing
  - Functionality and technology
  - Opportunities and risks
  - Best practices
- Planning an on-demand-services in public transport
  - Necessary data
  - Site selection
  - Participation process
  - Useful tools
  - Planning process
  - Field tests
  - Stakeholder management
- Operation an on-demand-services in public transport
  - DRT-software and other specific software
  - Frontend and backend hard-/software
  - Specific marketing requirements
  - Cost-calculation and –optimization
  - Fleet-management
  - Intermodal solutions

Duration
3 days

Target group
Newcomers

Course level
Fundamental Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Bpl5008

Strategic Transport Planning

Develop strategic insights into transport planning issues to help implement sustainable transport systems in the future.

Course content

Strategic transport planning is crucial in a region as it brings with it various economic, environmental and social impacts. For a transport company, it is also a critical component for all modelling and planning activities in a wider sense. Therefore, the purpose of strategic transport planning is to consider cross-effects not only with other modes of transport, but also within a wider sustainable context, and to focus on what is the most effective and efficient movement of people and goods.

This course provides you with important insights into travel behavior, strategic planning issues and modelling within a region. By analyzing and evaluating methods and case studies of integrated transport strategies, you will learn how to plan, develop, implement as well as apply sustainability typologies to public transport strategies.

- Strategic planning issues and modelling within a region
- Transport data and collection for informed decision making
- Sustainable spatial planning and analysis
- Planning, developing and implementing public transport strategies
- Monitoring the performance of transport projects in a policy context
- Applying sustainability typologies to public transport strategies
- Methods and case studies of integrated transport strategies

Duration
4 days

Target group
Specialists & Executives

Course level
Fundamental Training

Type of training
Online or Classroom

Methodology
Seminar

Certification
Attendance Certificate

Bts1013

Sustainable Solutions for Rural Public Transport

Get a theoretical approach and insight into the practical experiences of liberalization in public transport networks.

Course content

- Rural areas and their different challenges for public transport
- Low and disperse demand
- High costs
- Theoretical framework
- Nature of public services
- Unbundling, regulation and decentralization in network infrastructures
- Transaction costs, agency problems in the public transport market
- Organizational model for rural public transport systems
- Route vs Network-contracting
- Tender and contract designs
- Integrating new mobility solutions in public transport
  - Paratransit and on-demand mobility
  - Taxi and social mobility services
  - Community services by volunteer drivers

Duration
3 days

Target group
Newcomers & Executives

Course level
Fundamental Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

Bts5005

Technology and Trends in Innovation – Transport Systems

Keeping up to date on innovative technology and trends is essential for the future sustainable development of passenger transport services.

Course content

Just as people's travel behavior and routines are continuously changing, new technologies and innovative services are evolving in passenger transport systems. Environmentally friendly and smart services such as electric vehicles, driverless vehicles and smart ticketing are a few of the options under development. Therefore, it is necessary to keep up to date with these trends and innovative technologies and their possibilities to ensure your passenger transport system is fit for the future.

This course aims to build up an understanding of the factors that are considered important to the branch of knowledge and technology within transport systems. Aside from learning about smart mobility and business intelligence, you will take a closer look at app-based as well as automatic and robotic technologies. Moreover, by examining international case study examples in practice, you will develop your knowledge of specific tools and how they affect the ability to adapt to and control the environment.

- Important factors in innovation and technology concerning transport systems
- Smart Mobility
- Environmentally friendly passenger transport services
- Automatic and robotic technologies
- App-based technologies
- Business Intelligence
- International case study examples of innovative technologies in practice in the industry

Duration
2 days

Target group
All

Course level
Fundamental Training

Type of training
Online or Classroom

Methodology
Seminar

Certification
Attendance Certificate

Bto5001

Tender or Not to Tender – Governance of Urban and Regional Bus Networks

Finding the right mode of governance is essential for good service from a passenger's perspective.

Course content

Bus networks in urban, suburban or rural areas can be delivered in various modes of governance: While market-initiated services offer operators entrepreneurial freedom, the influence of public authorities is very limited. When networks are tendered public authorities can have a massive influence on the service.

In this training, you will get an overview of public transport regulation in urban and regional networks and learn about the relationship between public transport authorities and bus operating companies. Case Studies from EU and Non-EU regions will be provided. In addition, you will discuss the public transport setup in your home region or working context.

By recreating management situations, you will discuss governance modes for public transport from the perspectives of different stakeholders.

- Institutional frameworks for public transport
- Modes for procurement of public transport (i.e. direct awarding, in-house-production, tender designs)
- Contacts, Risks and Incentives
- Why data governance is important and how to avoid lock-in-effect
- Who owns the customer?

Duration
3 days

Target group
Newcomers & Executives

Course level
Fundamental Training

Type of training
Online or Classroom

Methodology
Seminar

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Btp5003

The Transport Regulatory Framework

Understanding why transport regulation is necessary and which regulations apply to passenger transport services helps to determine and implement an effective and sustainable concept.

Course content

To be part of an integrated transport system, it is critical to understand the role of the transport regulator and how the transport regulatory framework as well as changing transport policy trends affect you and your business. By understanding the need for regulation and how passenger transport services are regulated, you can improve the effectiveness, efficiency and sustainability of your own transport concept and services.

This course takes an in-depth look at the transport regulatory framework and covers key areas of legislation and regulation that apply to passenger transport services. By looking at different forms of regulation, you will also become aware of how regulation differs from operation. By reviewing trends and various international case study examples, you will understand how different regulatory models and economic approaches work and be able to make comparisons.

- The role and responsibilities of the transport regulator
- The necessity of transport regulation
- Key areas of legislation and regulation applying to passenger transport services
- Regulation vs. operation
- Trends and priorities of transport policy
- The PPP model and integrated transport solutions
- Case studies of international cities to illustrate how different authorities are engaging with the private sector

Duration
4 days

Target group
Specialists & Executives

Course level
Fundamental Training

Type of training
Online or Classroom

Methodology
Seminar

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Bts5006

Transport Planning and Design

Understand why a careful planning and design of a passenger transport system helps to achieve a successful integration of all modes of transport.

Course content

Nowadays, transportation companies require a service-oriented architecture that adapts to evolving customer needs. Consequently, transport planning means not only means planning and designing services, but also analyzing the mobility chain in a customer-oriented way and finding (smart) mobility service solutions which also allow the customer to combine transport modes. Ideally, this will result in the provision of an efficient and effective traffic service from which both parties benefit.

This course focuses on transport planning and how integration of all modes of transport is achieved through careful planning and design. It covers a wide range of aspects to be considered accompanied by practical exercises and case studies, so providing you with a comprehensive understanding of transport planning and design. By learning what to look out for when designing and evaluating a network, you will be able to enhance the quality of operations and performance in your own network.

- Principals and concepts of network planning
- Transport integration policy and planning
- Fundamentals of network design to include network modelling techniques and scenario analysis
- Network operations and standards
- Passenger stations and facility planning
- Service provision and reliability
- Network performance measures
- Operational and administrative evaluations and reviews

Duration
4 days

Target group
Specialists & Executives

Course level
Fundamental Training

Type of training
Online or Classroom

Methodology
Seminar

Certification
Attendance Certificate

Btp5007

Transport Policy and Legislation

Learn why understanding the importance of policy formulation, evaluation and stakeholder engagement helps to implement sustainable transport concepts.

Course content

Transport policy and legislation determine and regulate local transport systems. Therefore, it is vital that transport companies understand the policy formulations and can evaluate them. Transport systems also affect sustainability as well as other stakeholders in the region, so transport policy and legislation should also cover these aspects.

This course focuses on the process of policy formulation, stakeholder engagement and policy evaluation, using appropriate and relevant international case studies. You will look at traffic growth and possible future scenarios, and how policy has evolved to attempt to match the demand for and supply of road space. Furthermore, you will learn about how to orientate transport and transport policy within the wider context of sustainability, for example in terms of economic growth, climate change, health, social exclusion and education. By examining key policy documents and legislation relevant to transport in the region in areas such as planning, policy and finance, you will improve your understanding of policy formulation.

- The development of traffic growth and possible future scenarios
- Adaption of transport policy to meet changes to supply and demand
- Government structures relating to the delivery of transport services
- Orientation of transport and transport policy within the wider context of sustainability
- Environmental issues and alternative transport modes
- Key policy documents and legislation relevant to transport in the region

Duration
3 days

Target group
Specialists & Executives

Course level
Fundamental Training

Type of training
Online or Classroom

Methodology
Seminar

Certification
Attendance Certificate

Bts1014

Transport Sustainability Module

Understand the transport requirements and their differences as well as their influence on the transport sector.

Course content

- The module will focus on state-of-art sustainability policy and the participants will be placed in the position of policy experts tasked with developing, testing and presenting new and more sustainable transport policies for government, industry and local communities
- Case study example from a Northern European city
- The core program not only focuses on designing and assessing good policy, but also uses case studies and best practices to identify the extent to which governance arrangements can impact implementation

Duration
2 days

Target group
Newcomers & Executives

Course level
Fundamental Training

Type of training
Single

Methodology
Seminar

Certification
Attendance Certificate

Bts1015

Understanding Transport Demand Module

Understand the transport requirements and their differences as well as their influence on the transport sector.

Course content

- Transport planning as an interdisciplinary (engineering/social science) approach
- Role of social status, gender, biography, family situation etc. for transport demand
- Methods for measuring transport demand
- Household based Surveys
- Automatic counting methods
- Big Data analytics (i.e. floating phone data)
- How to influence the choice of the transport mode
- Methods for forecasting transport demand
- The link between spatial planning und transport planning
- From the individual to the city or country level
- How to illustrate the passenger transport
- As a workshop in groups with some simple calculations: How to connect a new suburb with downtown Dubai, model the demand for passenger transport and find a feasible transport solution for the urban development project

Duration
2 days

Target group
Newcomers & Executives

Course level
Fundamental Training

Type of training
Single

Methodology
Seminar

Certification
Attendance Certificate

Bpl5004

Understanding Travel Behavior – Transport Policy and Planning

Evaluating and monitoring travel behavior and its wider impacts is key to planning effective transport systems and policies and adapting to change and modal shift.

Course content

People's travel behavior and routines are continuously changing and have diverse impacts on a wide range of areas including energy security, climate change and public health. Being able to understand this is important, as it helps governments and transport companies around the world to plan effective transport systems and policies and help to create healthy urban environments, support economic growth and reduce congestion.

This course aims to show you why and how understanding travel behavior is making an important contribution to tackling some of today's global issues. Besides looking at principal theories of travel behavior and behavior change, you will learn more about the application of research techniques to monitor and evaluate transport plans and strategies. Moreover, by examining international case study examples of travel behavior change programs and modal shift in practice, you will gain valuable insights into what is needed for an effective and successful implementation of such programs.

- The importance of understanding travel behavior for transport policy and planning
- The greater impacts of travel behavior
- Principal theories of travel behavior, and behavior change
- The social and political context of travel behavior change
- Techniques of behavior change in different contexts, e.g. workplace, neighborhood/settlement, new developments, as applied to the choice of route and mode and the decision to travel
- Application of research techniques to monitor and evaluate transport plans and strategies
- International case study examples of travel behavior change programs and modal shift in practice

Duration
3 days

Target group
Specialists & Executives

Course level
Fundamental Training

Type of training
Online or Classroom

Methodology
Seminar

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Bfm1016

Vehicles & Management

Understand all relevant components of the bus operation including the management of buses as well as economic fundamentals.

Course content

- Application of regulations
- Planning and monitoring
- Management of daily driving schedules
- Improvement behavior and communication with customers
- Planning software utilization
- SAP utilization
- Regulations on health and environment safety
- Emergency management
- Economic fundamentals
- Communication, conflict and customer management
- General management
- Data privacy protection
- Legal principals in social and work law
- Technical vehicles

Duration
5 days

Target group
Newcomers & Executives

Course level
Fundamental Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

Btp5002

Workshop: How to Govern Smart Mobility Services

Most city governments need new tools to apply their transport policy goas to new services. However, often the right tools within the regulatory framework are missing.

Course content

New smart mobility solutions have recently been launched in various cities around the world. New business models are about to be developed. City governments and transport companies need to deal with the new players. Therefore, a mode of governance needs to be developed.

Depending on transport planning objectives, different measures to regulate new passenger transport services can be suitable. In the workshop, we will outline the pros and cons of 4-6 regulatory tools and how they can be applied to services like on-demand-mobility, bike-, scooter or car-sharing or cloud-based mobility platforms and journey planners.

- Characteristics of new smart mobility services
- Governing modes in the passenger transport sector
- Transport policy objectives and service design of smart mobility solutions
- Matching: Finding the right governance tool for new services.

Duration
1 day

Target group
Specialists & Executives

Course level
Fundamental Training

Type of training
Online or Classroom

Methodology
Seminar

Certification
Attendance Certificate

Back to all categories

08

Business Know-How

Business know-how is the knowledge and ability to run things smoothly within a company.

It also goes hand in hand with soft skills, which are not inherent abilities but vital in the business world as they enable you to interact effectively and harmoniously with other people. Applying the right skills and techniques will help achieve success in business and can provide your company with a competitive advantage.

As one of the world's leading companies in the transport and mobility sector, Deutsche Bahn has built up expertise in all aspects of managing a successful railway business. In view of the current shortage of skilled workers, DB has also gathered experience with change management processes to be able to meet the needs and requirements of new employees. In this context, our wealth of intercultural knowledge gained through our presence in over 140 countries helps us to accommodate the needs of international clients and employees.

Back to all categories

COURSES

Business Know-How

Advanced Quality Management Tools
Agile Management & Successful Leadership
Basic Knowledge Procurement Presence
Business Skills HR & Ergonomic
Business Skills, HR & Ergonomic I
Business Skills, HR & Ergonomic II
Certification as Global Mobility Manager
Certification as Rail Manager
Certification as Rail Professional
Change and Claim Management
Commercial Management Training
Controlling and Monitoring Training
Corporate Entrepreneurship & Innovation Management
Customer Service Training
Dealing With Stress
Economics
Economics in Railway Business
Economics in Railway Business I
Economics in Railway Business II
Finance Training Program
From Quality Management to Agile Quality Management
Getting Things Done® Program
GMC*: Customer Focus and Service Excellence
GMC*: Managing Across Borders
GMC*: Market Orientation and Strategic Innovation
GMC*: Strategic Management
Implementing Strategic Decisions and Changes
International Talent Development Program
International Talent Program
International Top Executive Development Program
Introduction to the VUCA* World
Leadership & Strategy for Rail in the Digital Age
Leadership & Strategy for Rail in the Digital Age: Innovations
Leadership & Strategy for Rail in the Digital Age: Strategy
Making Robust Strategic Decisions
Management & Leadership
Management Systems in Rail Organization
Management Systems in Rail Organization I
Management Systems in Rail Organization II
Marketing and Sales Training
Pedagogical Basic Training I
Policy, Funding & Regulation Training
Procurement – Supplier Management Basics
Quality Management Tools for everyone
Railway Business Management
Railway Project Management
Railway Project Management II
Railway Project Management III
Senior Development Program
Senior Management Program – SMP
Services for Third Parties – Damage and Contract
Stakeholder Management
Strategic Thinking in a VUCA* World
Strategic Thinking on New Paths
Successful Public Relations in Projects
Tendering: Own & Third Party Maintenance Depots
Training Management of Rail Workforce
Understanding and Generating Benefit from iMS
Understanding and Shaping the Change
Using Canvas Techniques to Deploy Company Strategy
Value Engineering, Standards & Regulations
Young Professional Program

*For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Sml5019

Advanced Quality Management Tools

Advanced Quality Management tools aid companies to tackle multi-facetted, complex problems and find ideal solutions for deep-rooted problems that go beyond daily business.

Course content

Basic Quality Management (QM) tools are fine for solving simple problems like superficial and singular occurrences. However, many problems are more complex or have become deeply rooted in the organization, possibly even affecting the whole company. Such problems require a wider approach and advanced methodology and thus advanced QM tools come into play.

In this course, you will get to know tools that are useful for tackling multi-facetted problems. After having discussed the contribution of QM to the corporate strategy and having understood that modern business models require a new way of managing quality, you will be introduced to and examine tools using case studies that address complex and demanding problems that a QM might be tasked to solve.

- Why some problems reoccur: a broader Quality Management perspective
- What the Quality Manager must understand about strategy development and deployment and why: The new role of QM
- How to overcome interface problems: Tools and designs to overcome silo mentality
- Facts and communication: Tools and procedures to discuss problems in a fact-oriented manner and overcome biases

Duration
2 days

Target group
Specialists & Executives

Course level
Advanced Training

Type of training
Online or Classroom

Methodology
Seminar

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Ddb1002

Agile Management & Successful Leadership

Learn how to analyze the maturity of organizations and become familiar with agile methods and approaches. By learning, develop a vision for your own agile change processes and a viable roadmap for personal change processes as well as an agile mindset for you and your department. In this way, frame the options for action for the creation of an agile culture of change.

Course content

- Dealing personally with changes
- Successfully controlling and communicating changes
- Understanding and dealing with a changing organizational culture
- Maturity level of organizations
- Agile methods and approaches
- Managing change processes

Requirements

This training requires basic knowledge as a prerequisite.

Duration
4 days

Target group
Executives

Course level
Advanced Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Spr1010

Basic Knowledge Procurement Presence

Understand the roles and responsibilities in the individual sub-processes and know the legal framework for procurement. In addition, be sensitized to the various pitfalls and possible sources of error in the procurement process.

Course content

- Get to know the different roles and responsibilities in procurement
- Deal with collaboration with consumers and suppliers
- Get to know the legal framework and the regulations relevant to procurement.
- Know the pitfalls and sources of error in the procurement process and learn how to minimize these risks

Duration
2 days

Target group
Newcomers

Course level
Fundamental Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Sml1002

Business Skills, HR & Ergonomic

Improve your management related skills from risk analysis, safety concepts to HR topics and human factors in rail.

Course content

- The concept of process-based and risk-oriented management and the context to the railway company-concept of risk analysis and assessment, risk identification and definition of processes as risk management measures
- The concept of systematic safety management, hazard management, incident investigation
- Development of implications for safety and just culture in daily work
- Typology and management of large rail projects, performance improvement projects
- Strategic management of technology and control of technology and project risks
- Ethos and the ethics of the science of ergonomics and its application
- Environmental system of the human, the machine and the task related to the railway
- Human factors in a context of systems, tools and techniques of ergonomics, ergonomics of work, aging and population issues

Requirements

This training requires basic knowledge as a prerequisite.

Duration
5 days

Target group
Specialists & Executives

Course level
Advanced Training

Type of training
Single

Methodology
Seminar

Certification
Attendance Certificate

Sml1041

Business Skills, HR & Ergonomic I

Improve your management related skills from risk analysis, safety concepts to HR topics and human factors in rail.

Course content

- The concept of process based and risk orientated management and the context to railway company - concept of risk analysis and evaluation, risk identification and the definition of processes as risk control measures
- The concept of systematic safety management, hazard management, incident investigation
- Development of implications for safety and just culture in daily work
- Typology and management of large rail projects, performance improvement projects
- Strategic management of technology and control of technology and project risks

Requirements

This training requires basic knowledge as a prerequisite.

Duration
3 days

Target group
Specialists & Executives

Course level
Advanced Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Sml1042

Business Skills, HR & Ergonomic II

Improve your management related skills from risk analysis, safety concepts to HR topics and human factors in rail.

Course content

- Ethos and the ethics of the science of ergonomics and its application
- Environmental framework of the human being, machine and task in the railway context
- Human factors in a context of systems, tools and techniques of ergonomics, ergonomics of work, aging and population issues
- HR Management: key principals, processes and challenges in railway industry
- Recruitment
- Deployment
- Performance management and optimization
- Compensation management and system for different occupational groups and levels in organization structure

Requirements

This training requires basic knowledge as a prerequisite.

Duration
3 days

Target group
Specialists & Executives

Course level
Advanced Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Voc1003

Certification as Global Mobility Manager

Get familiar with the transport systems, the vehicle engineering and operations and the infrastructure of transport systems. In addition, get to know the management and the leadership.

Course content

- Overview of the design parameters of a railway (objectives, key concept, planning process)
- Light vs. heavy rail
- Understanding the capacity improvement system (parameters of capacity, capacity research and interdependencies and challenges)
- The development of the concept of system engineering and integration and related philosophies
- Interface between components of the system engineering and system integration
- Overview of the system engineering process
- Practical guide to concepts
- Safety criteria, characteristics and advantages of rail passenger transport systems
- Technical characteristics of rail transports and typical market segments served by rail passenger transport systems
- Advantages of rail systems for mobility, environment and spatial development
- Personal handling of change and successful control and communication
- Maturity of organizations
- Agile methods and approaches
- Managing change processes

Requirements

This training requires basic knowledge as a prerequisite.

Duration
4 modules

Target group
Executives

Course level
Advanced Training

Type of training
Program

Methodology
Seminar

Certification
Attendance Certificate

Voc1004

Certification as Rail Manager

Get familiar with the rail system, the rolling stock & operations (II), the infrastructure (II) and the soft business-skills.

Course content

- Interface between components of the system engineering and system integration
- System design as a process
- Developing a concept of a rail system:
  - System boundaries
  - Operating conditions & operational constraints
- Excursion to the Depot of Trams
- Specific technical considerations for the tram
- Handling common rail infrastructure deficiencies: details on repairs
- Deduction of further challenges in maintenance strategies
- The concept of process-based and risk-oriented management and the context to the railway undertaking - concept of risk analysis and assessment, risk identification and definition of processes as risk management measures

Requirements

This training requires basic knowledge as a prerequisite.

Duration
4 modules

Target group
Specialists

Course level
Advanced Training

Type of training
Program

Methodology
Seminar

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Voc1005

Certification as Rail Professional

Get familiar with the rail system fundamentals, the rolling stock & operations (I), the infrastructure (I) and the rail business-skills.

Course content

- Development of the concept of system engineering and integration
- Interfaces between components of systems engineering and system integration
- Interactions between (sub) systems and between systems and their environments
- Assess the impact of human behavior on system performance
- The basic elements of rolling stock: components, aspects, functions & interactions
- The differences and similarities and advantages and disadvantages of different vehicles
- Technical consideration of a specific element of the rolling stock: brakes
- The technical details of rail infrastructure
- Different maintenance strategies
- Control and safety systems for railway traffic: blocks
- Signaling in practice – the failing of technology
- The value-added-chain of RTA and relevant core processes
- The concept of process-based & risk-oriented management and the context to the railway company
- The concept of risk analysis and assessment by estimating the frequency of an incident and the severity of its consequences
- The concept of incident investigation

Duration
4 modules

Target group
Newcomers

Course level
Fundamental Training

Type of training
Program

Methodology
Seminar

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Scm1039

Change and Claim Management

Focus your role in projects on contract fulfillment and thus on adherence to contractual costs/budget, deadlines and quality/quantity. The active management of contracts both in the planning and in the implementation phase is an essential part of the training.

Course content

- The contract as a foundation for claim and change management
- Contract and communication structures in projects
- Do’s and dont’s in contracts
- Systematic and consistent change management to secure the project
- Claim types, claim process and documentation, strategy and management as success factor in the project
- Methods (process, content, procedure) of contract, change and claim management and how to apply them in your projects
- Analysis and evaluation of contracts and initiation of measures to fulfil the contract.
- Basis for a successful claim and change management: prepare and enforce own claims and defend against unauthorized third-party claims

Duration
2 days

Target group
Executives

Course level
Fundamental Training

Type of training
Single

Methodology
Seminar

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Spr1003

Commercial Management Training

Learn about the procurement process and the contract management as well as the price and condition management in contracts. Be prepared to execute tenders and orders.

Course content

- Out-services versus in-house services
- Basic principals and optimization of procurement processes
- Different types of contracts
- Responsibility of the contractor
- Quality incentive contracts and incentives
- Minimum performance standards
- Authorized Contractor Status
- Process and legal requirements for tenders and orders
- Application of the system IT-System (e.g. eVergabe)
- Create and edit award projects
- Supplier evaluation and management
- Pricing, price updates and price pressures
- Adapting contractual terms
- Dealing with different user numbers/number of processes

Requirements

This training requires basic knowledge as a prerequisite.

Duration
6 days

Target group
Executives

Course level
Advanced Training

Type of training
Program

Methodology
Lecture

Certification
Attendance Certificate

Sfc1004

Controlling and Monitoring Training

Get familiar with the investing, maintaining and controlling of investment projects (e.g. SAP). In addition, gain insights into the value analyzes and the measurement of performance KPIs1.

Course content

- Market trends and analysis- Insight into Commercial Project Management
- Overview of typical project phases and structures
- Learn how to create and manage projects in the IT system (e.g. SAP)
- Capture, modify, and display the preview in the IT-System (e.g. SAP)
- Display the financing of projects in the IT-System (e.g. SAP)
- Understanding commercial processes in the project process
- Overview of the commercial project completion
- Getting a deep knowledge of value analysis and philosophy
- Understanding how supplier evaluations are performed with a value analysis work plan
- Learning best practices of value analysis
- Implementing performance and business review processes
- Developing and implementing the system of KPIs
- Learn how to control key metrics and KPIs such as lost mileage, punctuality, customer feedback, planning efficiency and vehicle utilization, driver usage, revenue, budget variance and more

Requirements

This training requires basic knowledge as a prerequisite.

Duration
11 days

Target group
Executives

Course level
Fundamental Training

Type of training
Single

Methodology
Seminar

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Sml1005

Corporate Entrepreneurship & Innovation Management

In the first part “Corporate Innovation” develop a holistic perspective on the importance of innovation and entrepreneurship for business growth and survival. It becomes clear how the corporate context can restrict and facilitate the entrepreneurial process. In the second part, experience in depth the exciting and challenging process of creating and using entrepreneurial opportunities in an entrepreneurial context.

Course content

- Understanding and managing the connections between business goals, corporate strategy and (the portfolio of) individual entrepreneurial opportunities
- Dealing with disruptive innovations
- How to collaborate with innovations
- Brainstorming, value proposition design and customer segmentation
- Design thinking
- Business modeling
- Lean start-up, hypothesis testing, rapid prototyping (Minimum Viable Product) and “failing fast”
- Progress measurement and change of the business model
- Pitching and evaluating of entrepreneurial projects
- Peer feedback

Requirements

This training requires basic knowledge as a prerequisite.

Duration
2 modules

Target group
Executives

Course level
Fundamental Training

Type of training
Single

Methodology
Seminar

Certification
Attendance Certificate

*For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Sml1005

Customer Service Training

Lear about the customer-oriented management methods and how to satisfy customers with innovative services. Get familiar with the professional conflict management.

Course content

- Professional attitude during customer meetings
- Holding a conversation during customer meetings
- Customer value thinking and positive formulation
- Dealing with conflicts and difficult customers
- Your role as manager in service areas
- What does innovative customer service mean for me?
- The communication model “model of the world” and the most important aspects of perception
- Current customer services and managing complaints
- Inspiring your own service and motivate your team
- How to motivate people to deliver a high-quality service
- Identify stress factors
- Managing stress successfully
- How to avoid conflicts and solve conflicts successfully

Requirements

This training requires basic knowledge as a prerequisite.

Duration
6 days

Target group
Executives

Course level
Advanced Training

Type of training
Program

Methodology
Seminar

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Stc1007

Dealing With Stress

Get preparation on how train drivers should react to traumatic situations (accidents, suicides on the rails).

Course content

- The three stages of stress
- Stressors
- Stress responses and warning signals
- Thoughts that intensify and alleviate stress
- Stress at work
- Reactions and symptoms of a stress response
- Psychological shock and crisis
- Post-traumatic stress disorder
- Symptoms and coping strategies
- Behavior in emergency situations and options for providing support
- Personal strategies for coping with stress
- Relaxation methods
- Dealing with rotating shifts
- Information on the investigative procedures for medical emergencies

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Sml1008

Economics

Improve your business skills, focusing on the basics of accounting and on profits and losses.

Course content

- Understanding the operational value chain
- Get an overview of the structure of the profit and loss account
- Understanding financial reports and balance sheet, importance of investments and working capital
- Rating and international accounting
- Fundamentals of the cost and performance calculation
- Operational and strategic controlling
- Get to know the business case and business plan instruments
- Introduction to statistics, key performance indicators (KPI)
- Overview of DB Group accounting, introduction to accounting
- Cost type/center and calculation
- Principal of order invoicing, cost allocation

Requirements

This training requires basic knowledge as a prerequisite.

Duration
5 days

Target group
Specialists & Executives

Course level
Advanced Training

Type of training
Single

Methodology
Seminar

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Sml1916

Economics in Railway Business

Refresh your accounting skills to keep ahead in the railway business. Brush up your accounting and controlling skills to help ensure positive future financial results. From cost and performance calculation fundamentals to KPIs - learn how to understand important financial documents and use business plan instruments to your advantage.

Course content

This course provides you with important accounting and controlling knowledge to help you aim for a positive financial result long term. It leads to you being able to develop and improve your business skills, focusing on the basics of accounting and on profits and losses in order to make the right financial decisions in the future.

- Understanding the operational value chain
- Get an overview of the structure of the profit and loss account
- Understanding financial reports and balance sheets, importance of investments and working capital
- Rating and international accounting
- Fundamentals of the cost and performance calculation
- Operational and strategic controlling
- Get to know the business case and business plan instruments
- Introduction to statistics, key performance indicators (KPI)
- Overview of DB Group accounting, introduction to accounting
- Cost type/center and calculation
- Principal of order invoicing, cost allocation

Duration
5 days

Target group
Specialists & Executives

Course level
Fundamental Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

Sml5016

Economics in Railway Business I

Get an important accounting and controlling knowledge to help them aim for a positive financial result long-term. Develop and improve their business skills, focusing on the basics of accounting and on profits and losses, to make the right financial decisions in future.

Course content

- Understanding the operational value chain
- Get an overview of the structure of the profit and loss account
- Understanding financial reports and balance sheets, importance of investments and working capital
- Rating and international accounting
- Fundamentals of the cost and performance calculation

Duration
4 days

Target group
Specialists & Executives

Course level
Fundamental Training

Type of training
Online or Classroom

Methodology
Seminar

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Sml6016

Economics in Railway Business II

Get an important accounting and controlling knowledge to help them aim for a positive financial result long-term. It aids to build up your competence by examining operational and strategic financial challenges related to the railway. It leads you to being able to develop and improve their business skills, focusing on the basics of accounting and on profits and losses, to make the right financial decisions in future.

Course content

- Operational and strategic controlling
- Get to know the business case and business plan instruments
- Introduction to statistics, key performance indicators (KPI)
- Overview of DB Group accounting, introduction to accounting
- Cost type/center and calculation
- Principal of order invoicing, cost allocation

Duration
4 days

Target group
Specialists & Executives

Course level
Fundamental Training

Type of training
Online or Classroom

Methodology
Seminar

Certification
Attendance Certificate

*For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Sfc1013

Finance Training Program

Get familiar with the invest and profitability analysis and the financial planning.

Course content

- Classification and integration of the profitability analysis in the accounting
- Methodology of the profitability analysis (incl. IT-System)
- Creation of continuation and planning alternatives
- Valuation with profitability analysis (e.g. with standardized forms)
- Financing agreements
- Prioritizations
- Budgets and cost center management
- Short and long term planning
- Forecasting tools and methodology
- Return on investment measures
- KPIs and performance metrics
- Capital expenditures

Requirements

This training requires basic knowledge as a prerequisite.

Duration
4 days

Target group
Executives

Course level
Fundamental Training

Type of training
Single

Methodology
Seminar

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Sml5020

From Quality Management to Agile Quality Management

In today's volatile and ever-changing business, managers need to be agile and flexible. This means our ways of managing business and quality management need to change.

Course content

Today's business world requires companies to find a balance between process stability and market/product flexibility. This is why being agile is important: Agile Quality Management requires rethinking by the quality and company managers.

In this interactive course, you will begin by taking a different look at the company as an organization and discussing the interaction between process stability and the need for flexibility resulting from improvements and market development. Furthermore, you will explore more fundamental tools of managing the company. These tools will aid you to move your company towards agility and a failure acceptance/learning culture.

- Reasons for changes in Quality Management: The need for Agile Quality Management
- The modern role of the Quality Manager: From Quality Assurance to Quality Management to Organizational development
- The QM as internal consultant and QM Tools for the next level, e.g. self-assessments, simulations, layered process audits

Duration
2 days

Target group
Specialists & Executives

Course level
Advanced Training

Type of training
Online or Classroom

Methodology
Seminar

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Stc1014

Getting Things Done® Program

Based on David Allen's international bestseller "Getting Things Done: the Art of Stress-Free Productivity", the program provides concrete solutions to translate negative working pressures, persistent stress and uncertainty associated with prioritization into a comprehensive system for stress-free productivity. The program includes a Lotus Notes® application that, together with the implementation of GTD®, ensures that participants can apply the GTD® method immediately at work.

Course content

- Applying the concepts and basic principals of GTD®
- Insight into the five phases of the GTD® workflow (capture, clarify, organize, reflect and engage)
- Applying the principals to achieve the desired results and to determine the next steps
- Setting up your own reference system and system in Lotus Notes®
- Exercises to control the e-mail inbox
- Guided implementation time with personal coaching
- Reviewing of the resources and next steps for the successful application of GTD® in the future

Requirements

This training requires basic knowledge as a prerequisite.

Duration
2 days

Target group
Executives

Course level
Advanced Training

Type of training
Single

Methodology
Seminar

Certification
Attendance Certificate

*For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Sss1015

GMC*: Customer Focus and Service Excellence

Gain insights into the perspectives of service management and the creation of the customer experience. A special focus is on the creation of services that are tailored to the needs of the customer. Embark on a journey that leads you from a market environment analysis to a systematic understanding, from anticipating customer needs to translating that knowledge into competitive service definitions.

Course content

- Fundamentals of service excellence: from customer needs to value propositions
- Understanding and owning the service-profit chain
- Advantages from the point of view of the customer and the employees
- Examining the customer experience from end to end
- Tools for analyzing the effectiveness of processes
- Quality from the customer’s point of view; reasons why quality expectations are not met
- Customer relationship management in the service delivery context

Requirements

This training requires basic knowledge as a prerequisite.

* GMC = General Management Curriculum

Duration
4 days

Target group
Executives

Course level
Advanced Training

Type of training
Single

Methodology
Seminar

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Sml1016

GMC*: Managing across Borders

Meet international challenges by gaining a better understanding of the international business context and developing and implementing global strategies to adapt the organization to this diverse context. It also strengthens your intercultural management skills. In the near future, you will gain insights and hands-on tools to help you explore and use organizational and individual ways of using resources, relationships, and rules across borders.

Course content

- Globalization and regionalization
- Dealing with resources, relations and rules across borders
- Forming and implementing international business strategies
- Emerging markets
- Cross-cultural diversity of rules
- International corporate network
- Intercultural coordination, communication and leadership
- Managing cross-border projects

Requirements

This training requires basic knowledge as a prerequisite.

** GMC = General Management Curriculum*

Duration
3 days

Target group
Executives

Course level
Fundamental Training

Type of training
Single

Methodology
Seminar

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Sml1017

GMC*: Market Orientation and Strategic Innovation

Managers use what they have learned so far to analyze the traditional course of innovation projects and the tools for introducing innovation processes. The focus is on new innovative approaches and methods (lean start-ups, agile planning, SCRUM in an organizational context, etc.). You will discuss your own projects in the company, which relate to steering innovation projects and running into implementation hurdles.

Course content

- Identifying and dealing with opportunities and risks
- Strategic ways of innovation
- Developing and evaluating innovation strategies
- Generating ideas (using creativity techniques and other aides) and testing concepts
- Discussing the innovation process, from discovery to the post-launch review (Stage-Gate process)
- Cost of innovations and innovation hurdles
- Marketing ideas inside and outside the company
- Simulating own case studies

Requirements

This training requires basic knowledge as a prerequisite.

** GMC = General Management Curriculum*

Duration
4 days

Target group
Executives

Course level
Fundamental Training

Type of training
Single

Methodology
Seminar

Certification
Attendance Certificate

Sml1018

GMC*: Strategic Management

Based on what was learned in the first part, you will focus on implementing strategies in the second part. Managers learn how to communicate strategies to different target groups and learn the most important components of strategy follow-up: How can we avoid conflict of interests in the various business units and how do the measures taken affects on other business units?

Course content

- External analysis: market environment, stakeholder perspectives, market appeal
- Internal analysis, resources and skills at the company
- Generating and evaluating strategic options
- Communicating strategies and targets to various target groups
- Implementing strategies
- Monitoring quality and quantity targets

Requirements

This training requires basic knowledge as a prerequisite.

** GMC = General Management Curriculum*

Duration
4 days

Target group
Executives

Course level
Fundamental Training

Type of training
Single

Methodology
Seminar

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Sml1019

Implementing Strategic Decisions and Changes

Understand the importance of communication in an implementation and change process. Deepen methods for a better communication and addressing future opportunities and challenges.

Course content

- Leadership roles in an implementation and change process
- Vision concept for the implementation and change process (example of Deutsche Bahn)
- The function and effects of communication in a change process
- Introducing various methods to support leadership skills
- Model of feedback – Feed Forward: Feedback culture and it's opportunities for business
- Role of methods of coaching and motivation in an implementation and change process
- Creating a change agenda – an example of Deutsche Bahn

Requirements

This training requires basic knowledge as a prerequisite.

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Stc1020

International Talent Development Program

Prepare for new duties in a changed area of responsibility. During the program you will have the opportunity to thoroughly reflect on your previous successes, failures and behavior as a manager, examine different assumptions, and share ideas with colleagues. The program offers the opportunity to develop new courses of action and further expand management skills.

Course content

- The own leadership role
- Managing managers & managing in matrix organizations
- Emotional leadership
- Overcoming immunity to change
- Establishing and using networks
- Communication
- Exploring the own values
- Understanding culture
- The tools of organizational culture
- Start-up mindset
- Dealing with complexity
- Resilience
- Giving and receiving feedback

Requirements

This training requires basic knowledge as a prerequisite.

Duration
6 days

Target group
Executives

Course level
Advanced Training

Type of training
Program

Methodology
Seminar

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Stc1021

International Talent Program

Reflect on your own starting point and your impact as a person, as part of a team and as a manager in a professional context. Based on current situations, develop perspectives for the future and thus your own idea of how to manage and lead a more advanced management position.

Course content

- Reflection of the current environment: strengths and areas for personal growth
- Values and culture, the components of a transformative leadership
- Interacting in a team and dealing with conflicts
- Peer support
- Taking stock and preparing for transfers (learning partnerships)
- Leadership as a role: experiencing oneself as a leader
- Dealing with conflicting priorities, criticism and dilemmas
- Successful self-management
- Leadership and change
- Preparing for a future role
- Personal leadership goals (attitudes and values)
- Transfer planning

Requirements

This training requires basic knowledge as a prerequisite.

Duration
2 days

Target group
Executives

Course level
Advanced Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Stc1022

International Top Executive Development Program

Leadership requires the right balance between the optimization of existing systems and structures and the parallel implementation of innovative or disruptive ideas and business models. Organizational ambidexterity is the term that describes this ability to be both efficient and flexible. Investigate your role as an enabler for the future success of the company and reflect upon your leadership personality.

Course content

- Feedback on the effectiveness of your own leadership skills
- Reflection of your leadership personality particularly with regard to new challenges
- Leadership, dynamics and motivation of high-performance teams in a volatile environment
- Anticipating mega trends, scenarios and future strategies in the business environment
- Anchoring innovation at a personal and organizational level
- Enhancing the perspective by a range of discussions with speakers from business, science, society and politics
- Intensive networking and awareness from management

Requirements

This training requires basic knowledge as a prerequisite.

Duration
12 days

Target group
Executives

Course level
Advanced Training

Type of training
Program

Methodology
Seminar

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Sml5022

Introduction to the VUCA* World

Look at some everyday examples and learn about the VUCA-way of thinking and seeing. After learning the concept of VUCA, explore the world of complex processes from a manager's perspective. By reflecting on your own behavior, discover tools and solutions to cope with situations that offer no predictable and easy solutions.

Course content

- Discovering VUCA: Where rows of causality do not work
- Complex vs complicated: The core of VUCA
- The role of psychology: Biases and how they make things difficult
- Coping with VUCA: Approaches and methods

*VUCA = Volatility, Uncertainty, Complexity and Ambiguity

Duration
2 days

Target group
Specialists & Executives

Course level
Fundamental Training

Type of training
Online or Classroom

Methodology
Seminar

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Sml1915

Leadership & Strategy for Rail in the Digital Age

Get a comprehensive overview of important skills and methods necessary for a successful leadership of rail companies and projects in the digital age. The course will lead you to being more aware of the opportunities and challenges awaiting you in times requiring greater flexibility and adaption. It aids you to make the right decisions as well as develop and improve implementation and change processes professionally in future.

Course content

- Corporate strategy as a guideline for business strategies in the railway sector in a VUCA* world
- Challenges and opportunities in the digital age
- Digitalization and HR scenarios at Deutsche Bahn and their management implications
- Strategic product and service innovations
- Specific and effective decisions in the rail industry
- Dealing with decision bias and related problems in decision making
- Monitoring consequences of strategic decisions, methods of monitoring and examples of Deutsche Bahn

VUCA = Volatility, Uncertainty, Complexity and Ambiguity

Duration
3 days

Target group
Specialists & Executives

Course level
Fundamental Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Sml6015

Leadership & Strategy for Rail in the Digital Age: Innovations

Seize the opportunity and use strategic product, service and process innovations to overcome the challenges in a VUCA world. Learn methods and competences to help you develop your ideas and strategies effectively and efficiently to create added value in the rail industry.

Course content

This training enables you to develop an understanding of the strategic product and service innovations at a mobility company and the opportunities and challenges that companies face within a VUCA* world. You will learn methods of scenario planning and disruptive scenario for a modern inventory as well as to derive and develop new possibilities. For your leadership role, you will receive impulses to introduce innovations. This highly practical course promotes and challenges the development of own ideas and strategies to create added value for your company.

- Scenario planning and disruptive scenario
  - Approaches to strategic product and service innovations to address challenges in a VUCA* world
  - Strategic product and service innovations
- Leadership roles and skills
- Monitoring consequences of strategic decisions, methods of monitoring
- Change management: communication, change process

Next Steps

To complement this course take a look at our course Training Leadership & Strategy for Rail in the Digital Age: Strategy.

*VUCA = Volatility, Uncertainty, Complexity and Ambiguity

Duration
4 days

Target group
Specialists & Executives

Course level
Fundamental Training

Type of training
Online or Classroom

Methodology
Seminar

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Sml5015

Leadership & Strategy for Rail in the Digital Age: Strategy

Brush up on corporate and business strategy in a VUCA world and the right leadership and strategies for rail in the digital age. Learn methods and competences to help you lead effectively and efficiently and make robust yet flexible strategic decisions.

Course content

This training enables you to develop an understanding of the strategic situation at a mobility company and the opportunities and challenges that companies face within a VUCA* world. You will learn methods to make more robust decisions on flexible business strategies. This highly practical training promotes and challenges the development of own ideas and strategies to create added value for your company.

- Strategy vs. VUCA* world
  - Introduction to corporate and business strategy
  - Corporate strategy as a guideline for business strategies in the railway sector
  - Competitive advantage and positioning as main elements of business strategy
  - Opportunities and challenges in a VUCA* world
- Making robust decisions
  - Dealing with decision bias and related problems in decision making
  - Taking effective decisions on flexible business strategies in a rail context
  - Specific decisions in the rail industry

Next Steps

To complement this course take a look at our course Training Leadership & Strategy for Rail in the Digital Age: Innovations.

*VUCA = Volatility, Uncertainty, Complexity and Ambiguity

Duration
4 days

Target group
Specialists & Executives

Course level
Fundamental Training

Type of training
Online or Classroom

Methodology
Seminar

Certification
Attendance Certificate

Sml1023

Making Robust Strategic Decisions

Understanding the need to rethink the decision-making process and how to make robust but also flexible strategic decisions in an uncertain world. Furthermore, understand how to evaluate consequences of strategic decisions and adjust them.

Course content

- Dealing with decision contortions and related problems in decision making - debasing strategies and their application in the rail industry
- Taking effective decisions on flexible business strategies in a rail context – methodology and application to the rail industry (I+II)
- Specific decisions in the rail industry
- Monitoring consequences of strategic decisions – monitoring cockpit in the rail industry
- Methods of monitoring and examples of Deutsche Bahn
- Development of a transfer project: opportunities and challenges

Requirements

This training requires basic knowledge as a prerequisite.

Duration
3 days

Target group
Executives

Course level
Fundamental Training

Type of training
Single

Methodology
Seminar

Certification
Attendance Certificate

Sml1040

Management & Leadership

Understand all relevant components for a safe and successful railway operation and its systems as well as the need of how to make robust but also flexible strategic decisions in an uncertain world. Furthermore, learn about the importance of communication in an implementation and change process and deepen on the methods for a better communication and addressing future opportunities and challenges.

Course content

- Overview of components and subsystems of the train control function
- Communication and basic signaling systems
- Railway capacity and control
- ERTMS/ETCS
- Specific decisions in the rail industry
- Methods of monitoring and examples of Deutsche Bahn
- Development of a transfer project: opportunities and challenges
- Leadership roles in an implementation and change process
- Vision concept for the implementation and change process (example of Deutsche Bahn)
- Role of methods of coaching & motivation in an implementation and change process

Requirements

This training requires basic knowledge as a prerequisite.

Duration
5 days

Target group
Specialists & Executives

Course level
Advanced Training

Type of training
Single

Methodology
Seminar

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Sml1914

Management Systems in Rail Organization

Get a comprehensive overview of management systems necessary for successful rail organizations. Develop and implement management systems taking into account factors such as risk analysis, safety issues and human factors in rail. Deal professionally with a wide range of situations and challenges.

Course content

- The concept of process-based and risk-oriented management and the context to the railway company, the concept of risk analysis and assessment, risk identification and definition of processes as risk control measures
- The concept of systematic safety management, hazard management, incident investigation
- Development of implications for safety and just culture in daily work
- Typology and management of large rail projects, performance improvement projects
- Strategic management of technology and control of technology and project risks
- Ethos and the ethics of the science of ergonomics and its application

Duration
3 days

Target group
Specialists & Executives

Course level
Fundamental Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

Sml5014

Management Systems in Rail Organizations I

Improve your skills to ensure a smooth management of your rail organization and receive impulses to develop and use your skills profitably from the start. From risk analysis and safety concepts to HR topics and human factors, learn how to react professionally in diverse challenging situations.

Course content

This training provides you with a comprehensive overview of management systems necessary for successful rail organizations. It leads to you being able to develop and implement management systems, taking into account factors such as risk analysis, safety issues and human factors in rail. In particular, you will learn more about various concepts for a better understanding of risk, safety and hazard management. This training aids you to deal professionally with a wide range of situations and challenges.

- The concept of process-based and risk-oriented management and the context of the railway company, the concept of risk analysis and assessment, risk identification and definition of processes as risk control measures
- The concept of systematic safety management, hazard management, incident investigation
- Development of implications for safety and just culture in daily work
- Typology and management of large rail projects, performance improvement projects

Next Steps

To complement this course take a look at our course Management Systems in Rail Organization 2.

Duration
4 days

Target group
Specialists & Executives

Course level
Fundamental Training

Type of training
Online or Classroom

Methodology
Seminar

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Sml6014

Management Systems in Rail Organizations II

Build up your competence in dealing with management challenges related to the railway in relation to human factors and ergonomics. Gain insights to develop and use your skills profitably from the start. From risk analysis and safety concepts to HR topics and human factors, learn how to react professionally in diverse challenging situations.

Course content

This training provides you with a comprehensive overview of management systems necessary for successful rail organizations. It leads to you being able to develop and implement management systems taking into account factors such as risk analysis, safety issues and human factors in rail. You will especially focus on human factors and ergonomics to aid you enhance your skills and ability to design and arrange things people use. This training aids you to deal professionally with a wide range of situations and challenges.

- Strategic management of technology and control of technology and project risks
- Ethos and the ethics of the science of ergonomics and its application
- Environmental framework of the human being, machine and task in the railway context
- Human factors in a context of systems, tools and techniques of ergonomics, ergonomics of work, aging and population issues

Next Steps

To complement this course take a look at our course Management Systems in Rail Organization 1.

Duration
4 days

Target group
Specialists & Executives

Course level
Fundamental Training

Type of training
Online or Classroom

Methodology
Seminar

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Sss1024

Marketing and Sales Training

Get familiar with the commercial environment, the business appraisal and marketing processes.

Course content

- Overview of the commercial environment and business strategies
- Regulation and deregulation in the market
- Types of services, e.g. for bus: (urban, inter urban, park and ride, school bus, long distance)
- Competitor and market trends analysis
- Discounted cash flow and internal rate of return
- Network design and scheduling
- Calculate mileage and costs
- Passenger demand and sales estimation
- Ticket pricing
- Number of required vehicles and drivers
- Marketing strategies, market planning and objective setting
- Understanding what our customers and clients want
- Customer management and opportunities to get in touch with the customer
- Partnerships and collaborations
- Advertising and promotion process

Requirements

This training requires basic knowledge as a prerequisite.

Duration
6 days

Target group
Executives

Course level
Advanced Training

Type of training
Program

Methodology
Seminar

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Stc1025

Pedagogical Basic Training I

Understand the basics of pedagogical theory and didactic methods including the development of a training. First certification as a trainer.

Course content

- Learning theory and strategies for adults
- Influences of learning situations
- Methods for activating, motivating and teaching
- The definition of learning targets
- Structuring of trainings & storyline of trainings
- Communication methods
- Professional performances
- Management of groups

Duration
5 days

Target group
Newcomers

Course level
Fundamental Training

Type of training
Single

Methodology
Seminar

Certification
Attendance Certificate

Scm1026

Policy, Funding & Regulation Training

Get familiar with the operator responsibility in facility managements and with their policies, fundings and regulations.

Course content

- Legal basis of the responsibility of the operator
- Special operating requirements in facility managements
- Transfer of operator obligations
- Legal consequences of breaches of duty and infringements
- The role of documentation for receivables and debt management
- Basic principals in architectural and engineering law
- Regulation in public transport (according to local conditions)
- Funding and PPPs
- Standards for the qualification of employees
- Benchmarking and best practices in the world

Requirements

This training requires basic knowledge as a prerequisite.

Duration
2 days

Target group
Executives

Course level
Fundamental Training

Type of training
Single

Methodology
Seminar

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Spr1009

Procurement – Supplier Management Basics

Learn the basics of supplier management as well as the special features of supplier strategy, qualification and evaluation.

Course content

- Supplier Management - Classification, Concretization and Objectives of Supplier Management
- Supplier Strategy - Fundamentals of the Supplier Strategy with best-practice of Deutsche Bahn
- Supplier Qualification - Particularities of Supplier Qualification and in working with Suppliers
- Supplier Evaluation - Steps and Roles presented that are important in Supplier Evaluation
- Supplier Development/Stabilization - Difference between Supplier Stabilization and Supplier Development: When Should the Purchaser Perform Supplier Stabilization and which Steps Are to Be Observed?

Duration
2 days

Target group
Newcomers

Course level
Fundamental Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Sml5018

Quality Management Tools for Everyone

Learn about the application of a structured approach when implementing quality management tools aids a logical and successful problem solving.

Course content

Besides customer orientation, quality management is also about problem solving and selecting the right solutions to ensure continuous improvement. It is important to find the right tools and apply these in a systematic and logical manner to business activities at all levels in the organization. Ideally, this leads to a better understanding of the root cause of the problem and implementation of the respective solution, thus positively impacting business efficiency and improving quality.

In this course you will learn about the systematic way of problem solving and selection of solutions: from defining the problem to finding creative ways to tackle the problem to selecting the right measures. You will examine and evaluate various easy-to-use quality management tools, gaining knowledge of their features and advantages for particular situations. It should become apparent that the structured approach is not only relevant for Quality Managers, but for any specialist who is tasked with self-reliant problem solving.

- Fundamentals of Quality Management
- Importance of the application of a structured approach
- Tools used for the root cause analysis: cause effects diagram, pareto analysis, simple process mapping
- Methods to finding solutions: brainstorming, brainwriting, change of perspectives
- Tools used to select and decide on solutions: paired comparison analysis, value benefit analysis

Duration
2 days

Target group
All

Course level
Advanced Training

Type of training
Online or Classroom

Methodology
Seminar

Certification
Attendance Certificate

*For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Sml1027

Railway Business Management

Get the basic knowledge of the main components of the railway industry and how these components are put together to create the railway value chain.

Course content

- Fundamental knowledge of the main components of the railway industry
- Integration of components and creation of the value chain of the railway business
- Interface and collaboration between infrastructure and rolling stock
- Basics for the planning and implementation of railway operations
- General overview of the railway (from rail infrastructure, signaling, rolling stock)

Duration
3 days

Target group
Newcomers

Course level
Fundamental Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

Spm1028

Railway Project Management

Understand basic elements of project management for infrastructure, engineering and rail projects as well as the basics of BIM.

Course content

- Planning of projects in the rail industry: resource planning, cost estimation
- Risk analysis, timeline, critical path, etc.
- Monitoring and systematic control of rail projects, incl. structuring and documentation of work packages
- Change management: impact on plan, costs, time
- Specifics of requirements and documentation, contract, claim and stakeholder management in the rail environment
- BIM (Building Information Modelling) as main technology of infrastructure project management
- Case studies and exercises based on practice
- Examples and best practices

Duration
4 days

Target group
Newcomers & Specialists

Course level
Fundamental Training

Type of training
Single

Methodology
Seminar

Certification
Attendance Certificate

Spm1029

Railway Project Management II

Understand how to use the SCRUM methodology to agilely manage railway projects.

Course content

- Project management in railway industry: core principals and challenges
- Agile way of project management
- SCRUM methodology and process
- Application of SCRUM methodology:
  - Suitable railway projects
  - Roles
  - Workflow
  - Artifacts
  - Limitations
- Modern technics and tools to implement SCRUM
- Adaptations
- Examples and best practices based on DB’s experience

Duration
4 days

Target group
Newcomers & Specialists

Course level
Advanced Training

Type of training
Single

Methodology
Seminar

Certification
Attendance Certificate

Spm1030

Railway Project Management III

Get an introduction to planning projects in the rail industry: resource planning, cost estimation, risk analysis, timeline, critical path and etc., and get to know the specific characteristics of a Rail Project (Deutsche Bahn) and general requirements.

Course content

- Identifying the risks that are resulting from projects and knowing the entrepreneurial significance of projects
- Methodical definition and review of target categories
- Performing a profitability assessment
- The aspects of profitability
- Resource planning – Time and milestone plan, personnel and cost planning
- Requirement of planning to deal with unpredictable events
- Analysis of project environment: The proceeding and its benefit regarding risk identification
- Carrying out the qualified depiction of the findings from the risk management process
- Project assignments
- Possibilities for integrating a project into the corporate structure
- Managerial and social competencies that are needed to lead a project team towards success
- Project execution and project control
- Modification management
- Project completion

Duration
2 days

Target group
Executives

Course level
Advanced Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

Sml1031

Senior Development Program

Learn the railway industry in a VUCA world and the efficient assess management and maintenance (innovative technics) and the revenue management relating to the methods and experiences of Deutsche Bahn. Understand the high speed railway challenges and opportunities.

Course content

- Disruptive scenario approach
- Strategic product, service and process innovations in the VUCA world
- Implications of product, service and process innovations
- Future trends in the worldwide mobility sector with reflection on Malaysia
- Impacts for the business and dealing with challenges
- Digitization in infrastructure and the planning process
- Influencing factors of asset management
- VUCA in maintenance
- Design of new railway projects
- Challenges in planning and construction processes
- Development of revenue management
- Impact of VUCA environment and in high-speed trains development and operation
- Train protection in the digital area
- Impact of VUCA for manufactures

Requirements

This training requires basic knowledge as a prerequisite.

VUCA = Volatility, Uncertainty, Complexity and Ambiguity

Duration
5 days

Target group
Executives

Course level
Fundamental Training

Type of training
Single

Methodology
Seminar

Certification
Attendance Certificate

*For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Sml1032

Senior Management Program – SMP

Remain competitive in a VUCA world. As a manager in the rail industry, prepare yourself for new challenges and developments. The Senior Management Program by Deutsche Bahn offers you the topic Railway Business in a VUCA World and gets you in touch with DB's Top Managers. Visit DB's top locations and facilities to gain first-hand experience of Deutsche Bahn's competences.

Course content

Study Tour content: Senior Management Program Frankfurt

This 5-day Senior Management Program aids you to be prepared for the impact of the VUCA* World on your working environment. During this study tour, you will meet DB's Top Managers and learn from them as well as visit DB's top locations and facilities in Frankfurt. Through site visits, expert guidance and networking opportunities, you will receive new impulses and opportunities to reflect on how the VUCA* world impacts upon everyday work in the railway industry.

- **Day 1:** The railway industry in a VUCA World: how to stay competitive including a site visit of the DB Netz Operations Control Center
- **Day 2:** Future scenarios and their concrete implications for the world-wide mobility sector at the Frankfurt Innovation Lab of Deutsche Bahn. In the evening, fireside chat with a DB Engineering and Consulting board member
- **Day 3:** Rail Project and Revenue Management: methods and experience of Deutsche Bahn
- **Day 4:** Efficient asset management and maintenance: innovative technologies & tools including a guided tour through Frankfurt Central Station with an introduction to all key operational processes and the extension project. In the afternoon, you will visit the HSR maintenance workshop
- **Day 5:** High-Speed railway: challenges and opportunities. Guided tour through the Traffic and Resource Management Control Center of DB Fernverkehr (HSR). Concluding ceremony and handing over the certification to the participants.

*VUCA = Volatility, Uncertainty, Complexity and Ambiguity

Duration
5 days

Target group
Executives

Course level
Fundamental Training

Type of training
Single

Methodology
Seminar

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Scm1011

Services for Third Parties – Damage and Contract

Focus on contractual services and claims. The different character of the services results in different processes, from service entry to invoicing.

Course content

- Fundamentals of services for third parties
- Activity recording, evaluation and description for services for third parties
- Invoicing and evaluation of services for third parties
- Case Studies for Contract Services and Damage Cases

Duration
2 days

Target group
Newcomers

Course level
Fundamental Training

Type of training
Single

Methodology
Seminar

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Sml1012

Stakeholder Management

Get to know the topic under various scientific aspects and develop effective strategies for cooperation on the basis of proven analysis, communication and negotiation models.

Course content

- The ideal cooperation with stakeholders
- The benefit of empathy for a successful cooperation
- Successful communication and negotiation strategies
- Types of conflict and conflict resolution
- Recognize your own conflict patterns and personal type of conflict
- Collegial case counseling

*For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Sml1033

Strategic Thinking in a VUCA* World

Understand and address the current strategic situation in a railway company and the future opportunities and challenges in a VUCA world, based on a railway company.

Course content

- Introduction to corporate and business strategies
- Corporate strategy as a guideline for business strategies in the railway sector –the example of Deutsche Bahn
- Competitive advantage and positioning as main elements of business strategy – the example of Deutsche Bahn
- Development of a strategic alignment for businesses
- Opportunities and challenges in a VUCA world
- Digitization scenarios at DB and their management implications
- Development of digitization scenarios – scenario approach
- HR scenarios at Deutsche Bahn and their management implications
- Approaches to strategic product and service innovations to address challenges in a VUCA world
- Strategic product and service innovations – the perspective of Deutsche Bahn
- Developing products and service innovations

Requirements

This training requires basic knowledge as a prerequisite.

*VUCA = Volatility, Uncertainty, Complexity and Ambiguity

Duration
2 days

Target group
Newcomers

Course level
Fundamental Training

Type of training
Single

Methodology
Seminar

Certification
Attendance Certificate

Sml1034

Strategic Thinking on New Paths

Understand how to develop creative ideas and generate new solutions, business models or products – understand the current need of a new way of thinking. Furthermore, address future opportunities and challenges.

Course content

- The concept and opportunities of thinking on new paths
- The process and limitations of decision making (I+II)
- Sprint of Design Thinking (I+II)
- Methods and frameworks for fostering creativity and idea generation
- Methods and frameworks for a prototype building and testing
- Transfer: determination of application areas
- Designing and implementing new business models - the concepts for an effective innovation process
- Introducing of a concept of troubleshooting
- Development of a transfer project

Requirements

This training requires basic knowledge as a prerequisite.

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Spm1038

Successful Public Relations in Projects

Better understand stakeholders and evaluate project situations more reliably. Using practical examples, you will learn how to define the core messages of the project more concretely, select communication instruments and develop communication planning.

Course content

- Professional interaction with stakeholders and the public in potentially conflict-laden projects
- Changing social conditions and how does the railways deal with them?
- Get to know the “Guide to Improving Future Public Relations and Stakeholder Management” and apply it using concrete examples
- Develop an understanding of stakeholder concerns and adopt an appreciative basic attitude towards stakeholders
- Evaluate project situations correctly
- How to define key messages of the project
- Select appropriate communication tools
- Create effective communication planning for your construction project
- Learn how to position yourself optimally as a team

Duration
2 days

Target group
Executives

Course level
Fundamental Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

Spr1001

Tendering: Own & Third Party Maintenance Depots

Get familiar with the guidelines for qualifying own and third party maintenance depots. Receive an introduction to the overview of the relevant standards.

Course content

- Starting point: current maintenance regulations
- Identifying qualification contents by comparing maintenance requirements of current and future maintenance regulations
- Identifying guidelines for revising maintenance structure
- Analysis methods and tools
- Case study: qualification of maintenance depots when preparing production of ICx
  - Evaluating depot requirements in vehicle specifications
  - Using simulation to check mounting/dismounting of key components and/or on prototype vehicle with existing equipment
  - Identifying warehouse and logistics requirements due to greater scope of maintenance work (performing overhauls)

Requirements

This training requires basic knowledge as a prerequisite.

Duration
2 days

Target group
Executives

Course level
Advanced Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Sml1035

Training Management of Rail Workforce

Get an overview of development of resources to support the delivery of selected units from the Certificate in Rail Infrastructure and of the development of a common understanding of the track possession.

Course content

- Planning and negotiating the development of the training resources
- Developing the learning and assessment resources
- Validating the learning and assessment resources
- Lessons learnt from the process

Duration
3 days

Target group
Newcomers

Course level
Fundamental Training

Type of training
Single

Methodology
Lecture

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Sml5017

Understanding and Generating Benefit from iMS

Management Systems professionalize and optimize processes and integrating these systems helps to generate synergies within the daily work of the rail sector.

Course content

The implementation and certification of management systems is a common requirement in the railway business: The most common international regulations are environmental, operational, health security and quality management ISO-standards as well as local safety regulations. Most of these standards follow the same high-level structure, which offers the possibility of gaining synergies through integration. However, in many cases, real integration is not achieved. This is where integrated Management Systems come into play.

This training offers you an approach of how to link the most common regulations in such a way as to really get the most benefit from integrating management systems. You will become aware of the importance of iMS in a railway company and through examples learn how to generate synergies within day-to-day work. This course is particularly intended for general managers and consultants who decide on the resources and structures for systems integration.

- Fundamentals of an integrated management system
- Importance of an iMS in the railway business
- Comparison of requirements of the most common ISO-norms and the concept of high-level structure
- Integrating certifications
- Financial and non-financial benefits of iMS

Duration
2 days

Target group
Newcomers & Executives

Course level
Fundamental Training

Type of training
Online or Classroom

Methodology
Lecture

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Scc1036

Understanding and Shaping the Change

Work is becoming more agile, business models are increasingly digitalized and leadership is less centralized. Why is that the case? What are the game-changing trends that have developed over the last few years and which ones are having an impact on your company? How do successful, innovative companies work? What can companies and their leaders learn? This program shows how digitalization is changing the economy and the mobility sector.

Course content

- Technologies, requirements and challenges: what characterizes the digital transformation and where does it go?
- Insights into other groups and start-ups, including getting to know each other and discussions
- Understanding agile organizations, becoming familiar with agile methods
- Overview of digital projects at the DB Group
- Applying what you have learned to your department

Requirements

This training requires basic knowledge as a prerequisite.

Duration
3 days

Target group
Executives

Course level
Fundamental Training

Type of training
Single

Methodology
Seminar

Certification
Attendance Certificate

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Sml5021

Using Canvas Techniques to Deploy Company Strategy

Canvas techniques offer a hands-on-approach to communicate company strategy to everyone, helping to formulate and align goals, generate transparency and create plans of action.

Course content

Every company has a strategy. But strategy deployment is almost always a challenge. In many companies, there is a clear vision at the top and then there is the day-to-day business on the operational level. Companies, however, need to formulate, disseminate and align company objectives throughout all levels of the organization. For this purpose, they also rely on and make use of the knowledge of all staff, and communication is key. In modern transport companies, at least the team lead must know the corporate strategy in order to identify their contribution to the company's results and steer their teams into the right direction.

In this course, you will learn more on how to ensure that your company goals are fully aligned with the day-to-day actions of everyone in the organization. Besides analyzing where the problems lie in strategy deployment, you will learn how canvas techniques offer a hands-on-approach to communicate the strategy to the whole company and generate transparency on what the company is all about and what the individual's contribution to the overall success is.

- Seeing the whole: Why strategy deployment is a problem
- Setting the aim: The primary target for strategy deployment
- Telling the story: How to transport complicated strategies to everyone using canvas techniques

Duration
1 day

Target group
Specialists & Executives

Course level
Advanced Training

Type of training
Online or Classroom

Methodology
Seminar

Certification
Attendance Certificate

Sml1037

Value Engineering, Standards & Regulations

Understand the terms and methods of Value Engineering Management as well as the techniques of value analysis.

Course content

- The participants will be familiarized with the terms and methods of Value Engineering Management
- Presentation of relevant tools (analysis, valuation, creativity)
- The participants know the techniques of value analysis
- The participants know the value of a good teamwork for the value management
- The participants know the job plan of a value analysis according to DIN EN 12973
- The participants will be familiarized with the standards of TSI (technical specifications of interoperability)
- Overview to further regulations:
  - European norm (era)
  - Industry standards

For groups of 8 people or more. **Is your company interested? Contact us.** db-railacademy@db-eco.com

Voc1010

Young Professional Program

Get to know the 'on the Job Training' through coaching, mentoring and project tasks.

Course content

- Induction Day:
  - Understanding the organizations and structures, getting acquainted with current processes
  - The graduate will do a placement in the department where he will work after completing the graduate program (Aimed Working Area – 3 months)
  - The graduate will do a placement in another department with which he will work closely (Related Working Area – 2 months)
- Innovation Training:
  - Work in teams to select a topic for your innovation project proposals, determine the scope of your projects and work on the feasibility study
  - If the final job function for the graduate is strategic, then they will take over the placement and vice versa (Rotation-Strategy Operations – 2 months)
- Commercial Thinking:
  - Identify which business models apply to your Innovation Project proposals, which financial data to include in your business cases and how to measure and increase performance
  - Graduate of an external internship with a supplier/contractor in the area in which they would like to work (External Placement – 2 months)
- Managing Change:
  - Getting familiar with the transport network and the principals of operation
  - The graduate completes a placement in the department where he will work after completing the graduate program and attends the necessary technical training (Aimed Working Area – 3 months)
- Final presentation

Duration
12 months

Target group
Newcomers

Course level
Fundamental Training

Type of training
Program

Methodology
Lecture

Certification
Attendance Certificate

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