

Evolving the well-established

vdz

# Education and Training Programme 2024/25

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Dear customer, dear reader,

We are pleased to present the latest edition of our seminar and training brochure for the next two years. Our new seminar programme 2024/2025 focuses on a broad and varied training offer for professionals and managers. For more than 60 years now VDZ has been successfully providing education and vocational training for employees in the building materials industry and related industrial sectors.

Our new programme ranges from teaching technical basics and technical expertise to further training for managers. We offer individual, tailor-made seminars on the topics of clinker and cement production, maintenance, quality assurance, environmental protection, and concrete technology. In this new brochure you will find two new seminar topics reflecting current developments in the cement and concrete industry.

With the progressive decarbonisation of cement production, the use of clinker-efficient cements to reduce CO<sub>2</sub> emissions is becoming a relevant topic for the industry. Our seminar "Cements of the future" focusses on new clinker-efficient cement types such as CEM II/C and CEM VI cements, whose performance allows a wide range of applications in practice. This seminar provides an overview of the current state of development and standardisation of new cements. The possibilities and limits for practical implementation will be presented.

Almost all seminars can also be held tailor-made and implemented as in-house seminars according to individual customer requirements. In addition to our tried and tested attendance seminars, we now also offer a range of online seminars. All seminars which you can attend online are marked with a special online symbol in this flyer. Some seminars can be booked flexibly as online or attendance seminars.

In addition, VDZ is also offering a new learning platform called "cement-academy.org" on which our well-known online courses on all stages of the cement manufacturing process, our popular concrete and lime courses, selected lectures from VDZ seminars and electronic reference books will be available. The new-look platform offers enhanced visual appearance and increased user-friendliness. Navigation is intuitive and self-explanatory and a video on how to use the platform is also integrated. The platform has been optimised so that videos, texts, animations and other functions are compatible with all digital and mobile devices.

Dr. rer. nat. Stefan Schäfer  
M.Ed. Vanessa Griebing  
VDZ Training Centre





# Training Courses

## Crash Course Process Control

The SIMULEX® cement plant simulator for training plant supervisors, foremen, production personnel, control room operators and young engineers was developed by KHD Humboldt Wedag AG in cooperation with VDZ.

For over ten years VDZ has been using the simulator within the framework of training courses and has been continually supporting the further development of the system with practical input from the industry. The simulator provides a realistic reconstruction of a production plant with a state-of-the-art supervisory control and data acquisition system (SCADA).



### Learning objectives

- Comprehensive knowledge of the plant control system in general and the main control circuits in particular.
- Better understanding of how the various sub-processes in the cement plant are interconnected.
- Understanding of the main control circuits in order to reach and maintain target values (e.g. energy consumption).
- Capability to react to process disturbances in a proper way and to develop a long-term control strategy.

### Target groups

- Production personnel
- Control room operators
- Young engineers

### Topics

- Heating up and operating the kiln
- Operation of the raw, cement and coal mills
- Optimising production
- Managing process disturbances and special situations

### Methods

Presentations, interactive exercises, scenario-based training using the simulator, team work, group discussion.

### Trainers

The training is led by highly skilled and experienced engineers.

### Certificate

The participants will receive a certificate of attendance.

**19 – 21 February 2024**

Location: Duesseldorf VDZ

1,375 € per participant

Number of participants (min. – max.): 10 – 20

Duration: 3 days

We invite you to a joint evening event and dinner on the second day of the course.

Further information and registration:

<https://vdz.info/ccpc>

## Energy Balances and Efficiency

This training will provide knowledge of how to conduct and evaluate cement kiln and mill trials. Kiln and mill examinations are carried out in order to gather data on the performance and to validate warranty performance data such as the output, the energy consumption, input/output ratio or the efficiency. They also provide a reliable foundation for the optimisation of individual operational system components, the cement quality, the reduction of emissions levels and for assessment of material cycles and coating formations.




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### Learning objectives

Learn how to conduct and evaluate cement kiln (according to VDZ code of practice “VT 10”) and mill trials.

### Target groups

- Production personnel
- Control room operators
- Young engineers

### Topics

- Basics of conducting balances
- Planning, organisation and realisation of plant examinations
- Introduction into calculation of energy and mass balances
- Introduction into measuring techniques
- Case studies: Calculate an energy balance of a cyclone preheater plant, mass balance of a cyclone preheater plant
- Efficient mill operation (ball mill; roller press; VRM)
- Examinations of cement mills (focus on ball mills)
- Case studies: Ball mill examinations / audits
- Discussion of participants' specific questions and problems
- Plant visit

### Methods

Presentations, interactive exercises, class room training , site visit.

### Trainers

Highly skilled and experienced engineers.

### Certificate

The participants will receive a certificate of attendance.

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**18 - 21 March 2024**

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Location: Duesseldorf, VDZ

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2,500 € per participant

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Number of participants (min. - max.): 10 - 15

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Duration: 4 days

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We invite you to a joint event and dinner on the second day of the seminar.

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Further information and registration:

<https://vdz.info/ebae>

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## Cements of the Future

With the decarbonisation of cement production and the expected reduction in blastfurnace slag and fly ash quantities unburned limestone, calcined clays and recycled fines will gain in importance as cement main constituents. The focus will be on new, clinker-efficient cement types such as CEM II/C and CEM VI cements, whose performance allows a wide range of applications in practice.

This seminar provides an overview of the current state of development and standardisation of new cements. The possibilities and limits for practical implementation will be presented.



### Learning objectives

Participants will gain a deep insight into the possibilities and limits of the use of clinker-efficient cements for the reduction of CO<sub>2</sub> emissions.

### Target groups

- Plant managers and engineers
- Lab managers and staff
- Environmental managers
- Construction consultants
- Quality managers

### Topics

- Role of clinker efficient cements as an important part for the decarbonisation of concrete construction
- Cements with calcined clays
- Durability and practical feasibility of cements with high content of limestone
- Possibilities and limits of alternative binders
- Cements with recycled fines as main component
- Performance of new clinker efficient cements CEM II/C and CEM VI in concrete
- Technical approval procedure for new cements

### Methods

Presentation, discussion

### Trainers

Experienced engineers and highly specialised researchers.

### Certificate

The participants will receive a certificate of attendance.

**11 April 2024**

**31 March 2025**

Online seminar 

670 € per participant

Number of participants (min. - max.): 7 – 50

Duration: 1 day from 9 am to 16 pm

Further information and registration:

<https://vdz.info/cof>

## Grinding Technology in Cement Production

Raw material preparation and cement grinding are the first and the last major process steps during cement production. The energy demand of these two processes amounts to up to 70% of the electrical energy used in a cement plant.

This training will enable participants to obtain a better understanding of the comminution processes as well as the equipment used for material grinding to ensure high levels of availability. This altogether will allow an optimisation of production rates and reducing energy consumption.



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### Learning objectives

Attaining fundamental knowledge of raw material preparation and comminution processes considering raw meal and cement grinding, the equipment used and quality analysis.

### Target groups

- Process personnel
- Process and control room operators
- (Young) engineers

### Topics

- Raw materials extraction and preparation
  - Mining operations
  - Raw material homogenisation
- Quality parameters
  - Understanding powder characteristics
  - Particle size analysis
  - Specific surface according to Blaine / BET - method
- Grinding technology
  - Mills (e.g., ball mills, high -pressure grinding rollers, vertical roller mills)
  - Classifiers, Tromp-curve
  - Separators
  - Open and closed-circuit grinding
  - Impact of grinding systems on cement properties
  - Optimisation of grinding equipment
  - Maintenance

### Methods

Presentations, interactive exercises, group discussion, experience exchange, practical exercises.

**3 - 7 June 2024**

Location: online

2000 € per participant

Number of participants (min. - max.): 7 - 30

Duration: 4 days from 9 am to 16:30 pm

Further information and registration:

<https://vdz.info/gt>

### Trainers

The training is led by highly skilled and experienced engineers, external experts and users.

### Certificate

The participants will receive a certificate of attendance.

## Burning Technology in Cement Production

Clinker production is the most energy-intensive process step in cement manufacturing. It can represent up to 90% of the total energy demand in a cement plant and is therefore a main focus not only with regard to cost optimisation and quality improvement of the final product, but also regarding emission control and the reduction of impacts on the environment.

VDZ's training will enable participants to obtain a deeper knowledge of the clinker production process and a better understanding of how the daily decisions made by plant personnel can impact the overall performance of the plant (quality, electrical energy use, fuel consumption and emissions).



### Learning objectives

Overview of all relevant aspects of the clinker burning process. Attaining fundamental knowledge of cement manufacturing technology (material and burning technology), including the interconnection of sub-processes, process optimisation, emission abatement and efficient use of energy.

### Target groups

- Young engineers
- Production personnel and technical staff
- Process engineers
- Quality and laboratory engineers

### Topics

- Clinker formation and characterisation for cement production
  - Characterisation of raw materials
  - Clinker burning reactions, clinker phases and clinker formation
  - Clinker properties and effects on cement quality
  - Cement main components
- Raw materials for clinker production
  - Blending beds and homogenisation silos
  - Raw meal uniformity and quality control
- Clinker production and burning technology
  - Preheater, calciner, rotary kiln, burner, cooler
  - Alternative fuels and effects on the burning process
  - Circulation phenomena (chlorine, sulphur, alkalis, etc.)
  - Energy efficiency
- Refractories

**24 - 28 June 2024**

Online seminar 

2000 € per participant

Number of participants (min. - max.): 7 - 30

Duration: 4 days from 9 am to 16:30 pm

Further information and registration:  
<https://vdz.info/bt>

- Environment and emissions abatement
  - Emission monitoring
  - Emission abatement techniques

### Methods

Presentations, interactive exercises, group discussion, experience exchange, practical exercises.

### Trainers

Experienced engineers and highly specialised researchers.

### Certificate

The participants will receive a certificate of attendance.

## Firing Alternative Fuels

This course covers all relevant aspects concerning the use of alternative fuels in cement plants. Starting with the main political drivers such as the circular economy and the European waste fuel strategy, the training will give a detailed view of the current state-of-the-art-situation with regard to the use of alternative fuels in the EU. In this context, pre-treatment and suitable quality control of alternative fuels will be also explained and presented.

A main focus will be given to the drivers and barriers of the use of alternative fuels within the burning process. Relevant aspects will be explained and discussed with the participants. Finally, technical feasibilities, case studies and possible optimisation potential will be part of the training course.



### Learning objectives

Comprehensive overview of using alternative fuels in cement plants (from reception and quality control to firing).

### Target groups

- Process and lab engineers
- Energy managers
- Quality managers

### Topics

- Legal requirements
- AF Quality: Sampling and analysis
- Types of AF and impacts on the burning process
- Firing AF
- Optimisation of AF use
- Case studies
- Impact on clinker and cement properties

### Methods

Presentations, group discussion and experience exchange

### Trainers

Experienced engineers and highly specialised researchers.

**23 - 26 September 2024**

**15 - 18 September 2025**

Online seminar 

1,400 € per participant

Number of participants (min. - max.): 7 - 30

Duration: 4 days from 9 am to 12:30 am

Further information and registration:

<https://vdz.info/fat24>

### Certificate

The participants will receive a certificate of attendance.

## Crash Course on Cement Production and Use

The cement industry provides excellent job opportunities for young engineers or and young scientists. Training schemes introduce these new employees to cement technology, taking their different professional backgrounds into account. This training course provides an one-week in-depth training session which covers all relevant aspects of clinker and cement technology production including chemistry, mineralogy and environmental aspects. Quality control assurance as well as the cement performance of cement in mortar and concrete will also be addressed.



### Learning objectives

Overview of all relevant aspects of the cement manufacturing process.

### Target groups

- Recently recruited young engineers
- Skilled specialists at the beginning of their professional careers
- Newcomers in the cement industry

### Topics

Raw materials handling

Clinker production

- Main components of the rotary kiln plant
- Raw materials and fuels
- Burning conditions and their impact on clinker performance

Cement production

- Raw materials and cement grinding
- Common grinding systems
- Particle size distribution and product quality

Chemistry and mineralogy

- Clinker formation and clinker phases
- Hydration of cement

Concrete technology

- Mortar and concrete characteristics
- Strength and durability of concrete
- Role of admixtures in modern concrete production

Environmental issues

- Energy consumption
- Emissions / Emission abatement

**27 - 31 October 2025**

Location: VDZ Duesseldorf

2,750 € per participant

Number of participants (min. - max.): 10 - 15

Duration: 4 days

We invite you to a joint event and dinner on the second day of the seminar.

Further information and registration:

<https://vdz.info/cccpu>

Product quality assurance

- Quality control systems
- Cement standards
- Physical and chemical testing of cement

### Methods

Presentations, interactive exercises, group discussion, experience exchange, practical exercises, site visit.

### Trainers

Experienced engineers and highly specialised researchers.

### Certificate

The participants will receive a certificate of attendance.

# Customised Training

## Customised Training

Besides our open training courses, we offer a wide range of customised training courses, seminars and workshops. During over 60 years' teaching activity we have conducted numerous tailor-made training courses and seminars for cement producers and national or international organisations around the globe. The biggest advantage of this kind of training is that the topics, duration and the level of difficulty can be tailored to fit the customer's needs to provide maximum practical benefit.



### Target groups

- Production personnel
- Laboratory managers
- Qualified cement plant specialists
- Young and experienced engineers
- Managers and decision makers in the cement industry

### Topics (examples)

- Basic raw material preparation and homogenisation
- Basic/Advanced training in clinker production
- Basic training in alternative fuels and raw materials
- Advanced training in resources and energy efficiency
- Basic training in BAT, e.g. burners, grinding plants
- Basic cement chemistry and mineralogy training industrie
- Basic/Advanced training in grinding technologies
- Energy efficiency
- Measurement techniques and process automation
- State-of-the-art technologies in environmental protection, e.g. dust, CO<sub>2</sub>, SO<sub>2</sub>, NO<sub>x</sub>, trace elements
- Advanced training in energy consumption and management
- Basic training in emission abatement
- Basic/Advanced cement plant maintenance training
- Basic product quality and quality management training
- Advanced training on quality assurance and European standards (e.g., EN 196)
- Basic training in XRF analysis
- Basic training in technical and others

### On request

Costs depend on topic, duration and location.

Number of participants (min. - max.) 10 - 20

Further information:

<https://vdz.info/ctcaw>



Almost all in this flyer listed seminars can be booked as inhouse trainings.

### Duration

From one day to several weeks. Final tests can be offered on request.

### Trainers

The training is held by highly skilled and experienced engineers. Depending on the topic external experts will be involved.

### Certificate

The participants will receive a certificate of attendance.



## VDZ Learning Platform

The learning platform "cement-academy.org" offers VDZ online courses in many languages: in German - on cement and lime production and topics related to concrete technology; in English, French and Russian on cement production only.

The online courses are practice-oriented, up-to-date and multimedia-based. In addition to texts, images and videos, they also offer high-quality animations in order to make complex issues easier to understand. Thanks to web-based technologies, employees can learn cost-efficiently anywhere and anytime they have access to the internet. At the end of the courses, user have the opportunity to check their knowledge through questions and tests.

The courses can be used either for self-paced learning, as a supplement to class-room training or as a knowledge base.

### Target groups

- Industrial-technical employees
- Apprentices and trainers
- Young engineers
- Employees from the supplier industry

### Topics

- Raw material extraction and handling
- Clinker and cement production
- Loading, packaging and transportation
- General plant equipment
- Environmental protection
- Quality control

The VDZ Learning Platform in English includes 38 online courses and more than 75 hours of learning material.

### Methods

Web-based training (with high quality pictures, animations, videos, glossary and self-testing questions), final test.



### Prices for cement courses

650 € single license

2,850 € license for 5 learners

4,900 € license for 10 learners

21,000 € license for 50 learners

35,000 € Flatrate (150 learners)

Further information:

<https://vdz.info/vdzoc>

### Certificate

After successfully completed computer-based test an automatically generated confirmation can be downloaded for each online course.



# **General Conditions for Participation in VDZ Education and Training Programme**

## **Registration**

Registrations can only be made online via the VDZ website [www.vdz-online.de/en/training](http://www.vdz-online.de/en/training). All current registration deadlines are shown on the website. Participants will receive written confirmation of their registration.

## **Participation fee**

The participation fee includes training sessions, training course documentation, lunches, beverages and coffee breaks during the training sessions, one social event and presentation of certificates. The participation fee also includes the services that are listed in the respective descriptions of the training courses and seminars. If not stated differently, the general regulations under “Accommodation” apply.

## **VAT applicability:**

Invoices issued to recipients in Germany: The standard German rate of VAT, currently 19%, will be applied.

Invoices issued to recipients in other EU countries: VAT will not be applied, if the recipient provides a valid VAT registration number (reverse charge rule according to Art. 196, 205 EU-Directive 2006/112).

Invoices issued to recipients in non-EU countries: VAT will not be applied. A certificate of tax residence is required. The above-mentioned VAT application rules apply to participation in VDZ seminars and training courses only.

## **Accommodation**

If not stated otherwise in the descriptions of the courses, accommodation as well as the participants' travel costs are not included in the participation fee. VDZ will provide hotel recommendations, but the participants have to book their hotel accommodation by themselves. In the event of cancellation of a room reservation the terms and conditions of the hotel apply.

## **Payment**

Participants will receive an invoice (after registration) which is payable immediately upon receipt by bank transfer or cheque. Payment will be accepted in Euros only.

## **Cancellations by VDZ**

If an event is cancelled by VDZ, participants are entitled to a full refund of their participation fee. If one of courses, training and seminars is cancelled, participants will be informed by VDZ at least 4 weeks prior to the first day of the training.

## **Cancellations by the customer**

Participation fee will be refunded for cancellations made in writing up to 14 days prior to the event. No refund will be made for cancellations received after this date.

## **Changes and general rules**

VDZ reserves the right to change the course programme and agendas and to cancel events in case of insufficient bookings or other circumstances beyond VDZ's control. VDZ is not responsible for any other loss incurred by a participant as the result of the cancellation or amendment of an event by VDZ. These terms and conditions are governed by German law.

Duesseldorf, November 2023

## Impressions

VDZ conducts its trainings at various locations: at VDZ in Dues-seldorf, at selected cement plants in Germany or at VDZ part-ners' premises.

When planning its trainings VDZ pays great attention to the ti-meliness and urgency of the topic as well as the relevance for the praxis of each training or seminar.

Trainings are conducted by experienced lecturers because the learning success and the satisfaction of the participants are very important for us.

Further information and registration:

<https://www.vdz-online.de/en/training>



Cement plant visit



Practical exercises in a refractory company



Graduation ceremony in the Foremen Course



Class room training



Visiting VDZ laboratories



Cement plant visit

## Contact

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## Imprint

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