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# Technical Training Courses and Workshops 2020 / 2021

# Technical Training Courses and Workshops

**Contents**

VDZ has been offering its training and education programme for more than 60 years. Many experts in the cement industry have attended our courses, which range from highly focussed one-day workshops to two-year courses for foremen and cover a broad scope of topics on the production of cement and its application in mortar and concrete

Deeply rooted in the industry, VDZ is continually expanding its training programme, which is based on the technical and scientific expertise gained from its research and the services it provides for international cement producers.

Based on the positive experiences and the feedback from the many companies that have sent their experts to VDZ or for whom VDZ has provided customised courses, the current training portfolio has been further developed into a comprehensive programme covering all aspects of cement production. The programme is offered in English and the courses can be booked individually. In addition, all courses can also be customised on request for a company's own employees exclusively and held at any location.

The training programme contains seminars and courses for newcomers and experts in the cement industry. As classroom teaching units these are held at VDZ's Research Institute in Duesseldorf, allowing participants to profit from the Institute's facilities during practical exercises, when these are foreseen. To facilitate individual continual learning, VDZ also offers online courses, which are designed to train employees in the cement industry through computer-based learning methods. These web-based courses are accessible at any time. They combine different elements to make learning easier and more efficient, such as animations, focussed explanations, questions and tests. Trainees can learn at their own pace. In addition, companies can provide tutors to offer plant and company-specific support.

VDZ is delighted to provide this training and education programme and welcomes you to participate in its range of different courses and its e-learning platform.

Dr. rer. nat. Stefan Schäfer
VDZ Education and Training

# VDZ Training Courses Overview

| Code | Title | Dates | Duration | Costs, € |
|---|---|---|---|---|
| **2020** | | | | |
| C-PTP 1 | Process Technology of Cement Production Module 1: Raw Material Preparation and Grinding Technology, p. 8 – 9 | 3 – 7 February | 1 week | 2,500* |
| C-PTP 2 | Process Technology of Cement Production Module 2: Clinker Production and Material Technology, p. 10 – 11 | 10 – 14 February | 1 week | 2,500* |
| C-SIM-crash | Crash Course Process Control, p. 12 | 2 – 4 March | 2.5 days | 1,250 |
| S-WRM | Wear of Refractory Materials, p. 17 | 24 March | 1 day | 600 |
| S-IRM | Installation of Refractory Materials, p. 18 | 25 – 26 March | 2 days | 1,250 |
| C-PMR | Plant Maintenance and Refractories Course, p. 16 | 22 – 26 June | 1 week | 2,500 |
| C-EFI | Energy Balances and Efficiency, p. 13 | 5 – 9 October | 1 week | 2,500 |
| *** When booking both modules 1 and 2, the whole training course will cost 4,700 €** | | | | |
| **2021** | | | | |
| C-PMR | Plant Maintenance and Refractories Course, p. 16 | 17 – 21 May | 4 days | 2,500 |
| C-CYE | Crash Course for Young Engineers, p. 6 | 14 – 18 June | 1 week | 2,500 |
| C-SIM-bas | Basic Course Process Control, p.13 | 8 – 11 November | 1 week | 2,000 |
| C-PTP 1 | Process Technology of Cement Production Module 1: Raw Material Preparation and Grinding Technology, p. 8 – 9 | 29 November – 3 December | 1 week | 2,500* |
| C-PTP 2 | Process Technology of Cement Production Module 2: Clinker Production and Material Technology, p. 10 – 11 | 4 – 10 December | 1 week | 2,500* |
| *** When booking both modules 1 and 2, the whole training course will cost 4,700 €** | | | | |
| **Customised Training 2020/2021** | | | | |
| | Customised Training Courses, Seminars and Workshops, p. 20 | | From one day to several weeks | |
| **Online Training 2020/2021** | | | | |
| C-VOC | VDZ Online Courses, p. 22 | | 1week | 300 per licence |

For further information and booking visit www.vdz-online.de/en/training

# Technical Training Courses and Workshops

# C-CYE Crash Course for Young Engineers

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

**Duration, dates and costs:**

Five-day classroom training (6 hours per day)

**Training course 2021: 14 – 18 June**

**2,500 €** per participant

General conditions for seminars apply.

**Learning objectives:**

Overview of all relevant aspects of the cement manufacturing process up to the application of cement in concrete, including chemistry, mineralogy and environmental aspects. Quality control as well as cement performance in mortar and concrete will also be covered.

**Methods:**

- Classroom training
  - Morning sessions from 08:30 till 12:00
  - Afternoon sessions from 13:00 till 16:30
- Group discussion and experience exchange
- Plant visit

**Trainers:**

The training course is led by experienced engineers and highly specialised researchers.

**Certificate:**

Upon successful completion of the training course the participants will receive a certificate of attendance.

**Location:**

VDZ, Duesseldorf, Germany (nearest airport: DUS International).

# C-CYE Crash Course for Young Engineers (continued)

**Learning outcomes:**

- Compact knowledge with respect to all crucial aspects of cement manufacturing technology
- Fundamental knowledge regarding the chemistry and mineralogy of clinker and cement
- Familiarity with requirements on cement and cement compounds as well as cement performance in mortar and concrete
- Familiarity with the possible ways to reduce the environmental impact of cement manufacturing

**Target groups:**

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

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

**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 material and cement grinding
  - Common grinding systems
  - Particle size distribution and product qualities
- Chemistry and mineralogy
  - Clinker formation reactions and clinker phases
  - Hydration of cement
  - Blended cements
- Concrete technology
  - Mortar and concrete characteristics
  - Exposure classes of concrete
  - Role of admixtures in modern concrete production
- Environmental issues
  - Energy consumption
  - Emissions / emission abatement
- Product quality assurance
  - Quality control systems
  - Cement standards
  - Physical and chemical testing of cement
- Plant visit

# C-PTP Process Technology of Cement Production (Module 1)

This course consists of two modules: Grinding Technology and Raw Material Preparation as well as Clinker Production and Material Technology. Each module has a duration of one week. The course gives a deep insight into cement production technology, covering topics from quarry operation to cement grinding.

The modules can be booked individually. For detailed information on module 2 please see pages 10 and 11.

**Duration, dates and costs of module 1:**

Five-day classroom training (6 hours per day)

**Training course 2020: 3 – 7 February**
**Training course 2021: 29 November – 3 December**

**2,500 €** per participant

Costs when booking modules 1 and 2: **4,700 €** per participant

General conditions for seminars apply.

**Learning objectives:**

- Overview of all relevant aspects of the cement manufacturing process up to the application of cement in concrete
- Attaining fundamental knowledge of raw material preparation and cement production with regard to comminution processes, equipment used and quality analysis

**Methods:**

- Presentations, interactive exercises
  - Morning sessions from 08:30 till 12:00
  - Afternoon sessions from 13:00 till 16:30
- Team work, group discussion and experience exchange
- Practical exercises
- Final exam

**Trainers:**

The training course is led by experienced engineers and highly specialised researchers.

**Certificate:**

Upon successful completion of the training course the participants will receive a certificate of attendance.

**Location:**

VDZ, Duesseldorf, Germany (nearest airport: DUS International).

# C-PTP Process Technology of Cement Production (Module 1)

**Module 1: Grinding technology and raw material preparation**
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 75% of the electrical energy used in a cement plant. This training will enable participants to obtain a better understanding of the comminution processes and the equipment used for material grinding to ensure high levels of availability, optimise production rates and reduce energy consumption.

**Target groups:**

- Production personnel
- Process and control room operators
- Young engineers

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

**Topics:**

- Raw materials extraction
  - Mining operations
  - Quality control in the quarry
  - Raw material homogenisation

- Quality parameters
  - Understanding powder characteristics
  - Particle size analysis
  - Specific surface according to Blaine / BET- method

- Grinding technology
  - Ball mills
  - Vertical roller mills (VRMs)
  - High pressure roller mills
  - Classifiers / Tromp curve
  - Open and closed circuit grinding
  - Impact of grinding systems on cement properties
  - Optimisation of grinding equipment

# C-PTP Process Technology of Cement Production (Module 2)

This course consists of two modules: Grinding Technology and Raw Material Preparation, and Clinker Production and Material Technology. Each module has a duration of one week. The course gives a deep insight into cement production technology, covering topics from quarry operation to cement grinding.

The modules can be booked individually. For detailed information on module 1 please see pages 8 and 9.

**Duration, dates and costs of module 2:**

Five-day classroom training (6 hours per day)

**Training course 2020: 10 – 14 February**
**Training course 2021: 6 – 10 December**

**2,500 €** per participant

Costs when booking modules 1 and 2: **4,700 €** per participant

General conditions for seminars apply.

**Learning objectives:**

- Overview of all relevant aspects of the cement manufacturing process up to the application of cement in concrete
- 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

**Methods:**

- Presentations, interactive exercises
  - Morning sessions from 08:30 till 12:00
  - Afternoon sessions from 13:00 till 16:30
- Team work, group discussion and experience exchange
- Practical exercises
- Final exam

**Trainers:**

The training course is led by experienced engineers and highly specialised researchers.

**Certificate:**

Upon successful completion of the training course the participants will receive a certificate of attendance.

**Location:**

VDZ, Duesseldorf, Germany (nearest airport: DUS International).

# C-PTP Process Technology of Cement Production (Module 2)

**Module 2: Clinker production and material technology**
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 the impacts of the daily decisions of plant personnel on the plant's performance (quality, electrical energy use, fuel consumption and emissions).

**Target groups:**

- Young engineers
- Production personnel
- Technical staff
- Process engineers
- Quality and laboratory managers

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

**Topics:**

- Material technology
  - Characterisation of raw materials
  - Clinker formation and clinker phases
  - Clinker properties and effects on product qualities

- Raw material preparation
  - Blending beds and homogenisation silos
  - Raw meal uniformity and quality control

- Clinker production and burning technology
  - Preheater, calciner, rotary kiln, burner, cooler
  - Clinker burning reactions
  - Alternative fuels and effects on burning process
  - Circulation phenomena (chlorine, sulphur, alkalis, etc.)
  - Energy efficiency

- Environment and emissions abatement (dust, $NO_x$, $SO_2$, organics, trace elements, etc.)
  - Emission monitoring
  - Emission abatement techniques

- Refractories

# C-SIM-crash 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. As a result, the simulator provides a realistic reconstruction of a production plant with a state-of-the-art supervisory control and data acquisition system (SCADA).

**Duration, dates and costs:**

Tow-and-a-half-day classroom training (6 houres per day)

**Training course 2020: 2 – 4 March**

**1,250 €** per participant

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

General conditions for seminars apply.

**Learning objectives:**

To learn how to handle a cement plant control system and to understand the influence of process parameters on the cement manufacturing process.

**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

**Learning outcomes:**

- 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

**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:**

Upon successful completion of the training course the participants will receive a certificate of attendance.

**Location:**

VDZ, Duesseldorf, Germany (nearest airport: DUS International).

# C-SIM-bas Basic 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. As a result, the simulator provides a realistic reconstruction of a production plant with a state-of-the-art supervisory control and data acquisition system (SCADA).

**Duration, dates and costs:**

Four-day classroom training

**Training course 2021: 8 – 11 November**

**2,000 €** per participant

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

General conditions for seminars apply.

**Learning objectives:**

To learn how to handle a cement plant control system and to understand the influence of process parameters on the cement manufacturing process.

**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

**Learning outcomes:**

- 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

**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:**

Upon successful completion of the training course the participants will receive a certificate of attendance.

**Location:**

VDZ, Duesseldorf, Germany (nearest airport: DUS International).

# C-EFI Energy Balances and Efficiency

Learn how to conduct and evaluate cement kiln trials 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.

**Duration, dates and costs:**

Five-day classroom training and practical on site lessons

**Training course 2020: 5 – 9 October**

**2,500 €** per participant

**Number of participants (min. - max.) 10 – 15**

General conditions for seminars apply.

**Learning objectives:**

- Learn how to conduct and evaluate cement kiln trials (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
- 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

**Learning outcomes:**

- Calculate energy and mass-balances at cement kilns according to VDZ procedure (energy and mass-balances: Vt10).
- Plan and conduct kiln trials to gather data for energy and mass balances at cement kilns)
- Understand measurement and sampling techniques for kiln trials at basic level
- Conduct examinations to optimize mill operation according to VDZ procedure.

**Methods:**

- Presentaions, interactive exercises
- Class room training
- Site visit

**Trainers:**

The training is led by highly skilled and experienced engineers.

**Certificate:**

Upon successful completion of the training course the participants will receive a certificate of attendance.

**Location:**

Cement plant in Germany

VDZ, Duesseldorf, Germany (nearest airport: DUS International).


# Plant Maintenance and Refractories

# C-PMR Plant Maintenance and Refractories Course

Our Plant Maintenance and Refractories Course covers all topics concerning the high efficiency and availability of a cement plant's key machinery. Measurement of rotary kilns and ball mills as well as independent expertise in mechanical maintenance and inspections are also among the major aspects.
We also provide an extensive know-how transfer on high quality refractory kiln brick lining materials and installation including their relation to mechanical failure.

**Duration, dates and costs:**

Five-day classroom training and practical on–site lessons

**Training course 2020: 22 – 26 June**
**Training course 2021: 17 – 21 May**

**2,500 €** per participant

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

General conditions for seminars apply.

**Learning objectives:**

- Comprehensive knowledge of practical preventive maintenance solutions
- Better understanding of rotary kiln and ball mill behaviour
- Troubleshooting
- Refractories
- Optimisation of uptime and cost factors

**Target groups:**

- Maintenance managers
- Maintenance planners
- Maintenance staff
- Engineers
- Supervisors
- Team leader mechanics

**Topics:**

- Theoretical and practical maintenance inspection and measurement solutions
- Open gear lubrication and application
- Online machinery diagnostic and vibration analysis
- Necessity of non-distortion testing (NDT) and analysis
- Refractory material and installation

**Learning outcomes:**

- Comprehensive overview of preventive maintenance procedures

**Methods:**

- Presentations
- Hands-on practical inspection training
- Team work, group discussion

**Trainers:**

The training is led by highly skilled and experienced engineers.

**Certificate:**

Upon successful completion of the training course the participants will receive a certificate of attendance.

**Location:**

Cement plant in Germany
VDZ, Duesseldorf, Germany (nearest airport: DUS International).

# S-WRM Wear of Refractory Materials

The refractory lining of a cement plant is subject to wear, which can be typical to abnormal depending on the process conditions. A premature wear of the refractory lining usually results in an unexpected loss of production, which is associated with high costs. In order to be able to better assess the reasons for the wear that has occurred, the course gives an overview of the types of wear in the cement plant and their interpretation.
In addition, details are shown how the wear behaviour of the refractory lining in the cement plant changes as a result of the use of alternative fuels.

**Duration, dates and costs:**

One-day classroom training

**Training course 2020: 24 March**

**600 €** per participant

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

General conditions for seminars apply.

**Target groups:**

- Young and experienced engineers,
- Employees from the areas of production and maintenance

**Topics:**

- Thermal, chemical and mechanical causes of wear
- Visual inspection of refractory damage
- Influence of alternative fuels
- Kiln shell corrosion

**Learning objective:**

- With this course, participants should be given the opportunity to be able to identify and interpret the types of wear occurring in their system more quickly.

**Methods:**

- Lecture
- Group discussion

**Trainers:**

The speakers are experienced external experts and users.

**Certificate:**

Upon successful completion of the training course the participants will receive a certificate of attendance.

**Location:**

Refratechnik Goettingen

Nearest airport Hannover (HAJ)

# S-IRM Installation of Refractory Materials

For good lifetimes of the refractory materials in the clinker production line, a faultless installation is an important prerequisite. Even though the installation is carried out in most companies by external companies, supervision should be done by trained employees. This seminar should help the participants to be able to better evaluate the refractory installation and thereby recognize deficits at an early stage.

**Duration, dates and costs:**

Two-day classroom training

**Training course 2020: 25 – 26 March**

**1250 €** per participant

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

General conditions for seminars apply.

**Target groups:**

- Young and experienced engineers
- Employees from the areas of production and maintenance

**Topics:**

- Installation methods in rotary kilns
- General rules for the installation in rotary kilns
- Special installations in rotary kilns
- Refractory lining in the static areas

**Learning objective:**

- The participants get a comprehensive insight which installation methods exist and how errors during installation can be avoided.

**Methods:**

- Lecture
- Group discussion

**Trainers:**

The speakers are experienced external experts and users.

**Certificate:**

Upon successful completion of the training course the participants will receive a certificate of attendance.

**Location:**

Refratechnik Goettingen

Nearest airport Hannover (HAJ)

# Customised Training Courses

# Customised Training Courses, Seminars and Workshops

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. Our customised training courses, seminars and workshops are led by highly skilled and experienced engineers. Upon successful completion of each training or seminar the participants will receive a certificate of attendance

**Duration and dates:** From one day to several weeks

**Costs:** Dependent on the topic, duration and location

**Location:** At the customer's or VDZ's premises

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

**Target groups:**

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

**Topics:**

The topics of VDZ's customised training courses, seminars and workshops can cover all aspects of cement production from process technology through quality surveillance to emissions abatement. The following list provides an insight into possible customised trainings:

- **General topics**
  - Advanced plant optimisation and availability
  - Basic training in general plant technologies
  - Senior management training
- **Raw material extraction and preparation**
  - Basic raw material preparation and homogenisation
- **Pyroprocessing**
  - 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
  - Senior management training
- **Grinding technologies**
  - Basic/advanced training in grinding technologies
  - Energy efficiency
- **General plant installations**
  - Measurement techniques and process automation
  - Basic/advanced cement plant maintenance training
- **Environmental technology**
  - State-of-the-art technologies in environmental protection, e.g. dust, $CO_2$, $SO_2$, $NO_x$, trace elements
  - Advanced training in energy consumption and management
  - Basic training in emission abatement
- **Standards, quality assurance and analytics**
  - 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 mineralogy
- **Concrete technology**
  - Basic training in concrete technologies
  - Basic training in alkali-silica reaction (ASR)
- **Safety at work**
  - Cement plant health and safety measures
  - Working safely in hot areas of cement plants

Other topics for trainings and seminars are possible according to the customer's needs.

## Online Training

# C-VOC VDZ Online Courses

VDZ Online Courses are designed to train industrial employees in the cement industry through innovative, highly flexible online learning methods. The courses can be used either for self-paced learning, as a supplement to classroom training or as a knowledge base.

VDZ Online Courses provide the latest knowledge on cement production in an industry-proven, easily understandable format. Thanks to web-based technologies, high quality animations, self-tests and certification employees can learn cost-efficiently anywhere and anytime they have access to the internet.

Visit the VDZ Online Courses' website at **www.elearning-vdz.com**

**Duration:** Multiple courses, 1-3 hours each

**Dates:** Flexible starting dates, 1 year runtime

**Costs: 9,000 €** per year for the first 30 users; set up fee **1,500 €** one-off payment; **300 €** per year for any additional user

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

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


**Target groups:**

- Workers
- Craftsmen
- Foremen
- Plant operators
- Un- and semi-skilled personnel
- Industry newcomers
- Graduates and trainees
- Managers

**Topics:**

- **Raw material extraction**
  - Extraction, loading, transportation
  - Water drainage systems
- **Raw material preparation**
  - Primary comminution
  - Raw materials, blending bed
  - Combined drying and grinding systems for raw material
  - Raw meal homogenization systems
- **Clinker production**
  - Rotary kiln plants
  - Rotary kilns
  - Firing
  - Preheaters
  - Calciner
  - Bypass systems
  - Clinker coolers
  - Fuels
- **Cement production**
  - Cement grinding plants
  - Ball mills
  - Roller mills
  - High pressure roller mills
  - Classifiers
  - Cement raw materials, product range
  - Cement blending systems
  - Cement cooling
- **Packing plant and dispatch**
  - Packing machinery
  - Paletting machines
  - Cement storage
  - Loading equipment
- **General plant equipment**
  - Mechanical continuous conveyors
  - Pneumatic conveyors
  - Process measurement techniques
  - Weighing and dosing equipment
  - Drive technology
  - Compressed air supply
  - Cooling water supply and treatment
- **Environmental protection**
  - Dedusting equipment
  - Reduction of gas emissions

VDZ Online Courses include 36 modules and more than 75 hours of learning material.

# General Conditions

# General Conditions for VDZ Training Courses

**Registration**
Registrations can only be made online via the VDZ website 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. Participants will be informed about any cancellation 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 training course or seminar. 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 the German law.

Duesseldorf, November 2019

# VDZ Lecturers

With its training programme VDZ draws on over 60 years of experience in teaching cement manufacturing technology and related topics. Numerous short and multi-week training courses, workshops and seminars have been held for participants from around the globe, including Azerbaijan, China, several countries in Europe, India, Israel, Iran, Kazahstan, Turkey, Oman, Russia, Saudi Arabia and the USA.

All VDZ training courses are conducted by experienced engineers and researchers who have gained their expertise and practical experience working in cement production, in different international projects with regard to process and product optimisation, energy efficiency and emissions reduction, and in various practice-oriented research projects. VDZ lecturers possess comprehensive knowledge of advanced techniques used in cement manufacturing and are best informed about the latest trends and developments in the industry. For special topics experts from the plant engineering and supplying industries as well as special service providers are invited to participate in VDZ training courses as lecturers. The valuable practical experience and specialised theoretical knowledge of the lecturers is conveyed to the participants during the training courses.

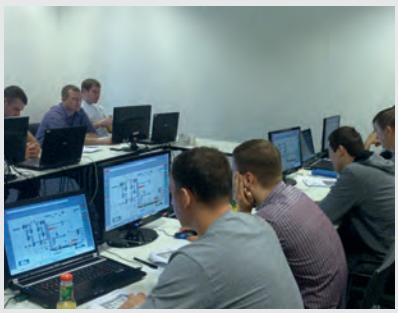
# Impressions

Classroom training session at VDZ

Training session, group work

Interactive exercises

Visit to the laboratory



Simulator training session

Practical exercises

Cement plant visit

Practical exercises at the plant

Final exam

Social event, brewery evening

Social event, sightseeing tour

Certificate presentation

# Contact

**Contact**

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