# BFZK – EDUCATION RESEARCH CENTER FOR CERAMICS

https://www.bfzk.de/ https://www.fgk-keramik.de/

**The Ceramics Education and Research Center (BFZK)** in Höhr-Grenzhausen, with its eight institutions active in the fields of research and development, teaching, business start-ups, design, art, and museum-based historical preservation, is an umbrella organization of ceramic institutes and unique in its constellation throughout Europe. The goal of this network is to ensure that ceramics, in its diverse range, receives increasing attention in technology, alternative energy production, medicine, and the environment.

Practical research (FGK and ECREF), entrepreneurship (CTC), teaching at the university (Bachelor's and Master's of Engineering in Ceramic Science), the technical college (state-certified ceramic technician, ceramic designer), and the vocational school are closely intertwined. The Institute for Artistic Ceramics and Glass (Bachelor's and Master's programs) and the Ceramics Museum, with 5,000 square meters of space, Europe's largest specialist museum for historical and modern ceramics, are hubs for local and international presentations.

For students, the BFZK network facilitates access to internships, offers inspiration for core and diploma theses, and perhaps even a gateway to professional life later on. Industry, from raw material production to the manufacture of finished products, utilizes this connection between the BFZK facilities for its own development. Benefiting from the educational and research experience and being able to draw on the research output in the future is a win-win for all involved. The BFZK serves as a connecting point for globally active graduates in terms of professional collaborations and knowledge exchange. Joint projects, conferences, symposia, seminars, and continuing education courses are organized.

## Training and continuing education opportunities at the Ceramics Education and Research Center/Höhr-Grenzhausen

Training and continuing education opportunities brochure

Technical school and university offerings

Flyer for the State-certified Ceramics Technician (technical school)

Flyer for the State-certified Ceramics Designer (technical school)

Flyer for the Bachelor of Engineering in Materials Technology, Glass & Ceramics

Flyer for the Master of Engineering in Materials Technology, Glass & Ceramics

Vocational training in the dual system

Training content for Industrial Ceramics Technician (Plant Engineering)

Training content for Industrial Ceramics Technician (Decoration Technology)

Training content for Industrial Ceramics Technician (Model Technology)

Training content for Industrial Ceramics Technician (Process Engineering)

Training content for Ceramics Technician (Crafts)

Training content for Ceramics Testing Technologist

Gallery Kannofen Firing 2021

A World Heritage Site in Höhr-Grenzhausen: The traditional Kannofen Firing.

In our gallery, you'll find impressions from the 60-hour pot kiln firing using the traditional method.

## Materials Engineering: Glass & Ceramics

Materials engineering emphasizes application-oriented aspects of materials that occur in the form of ceramics, glass, metal, and plastics. Based on knowledge of all types of materials, which is taught on a materials science basis, the program focuses on specialized knowledge of ceramics and glass technology. The goal of modern technology is to optimally integrate these inorganic, non-metallic functional materials into the overall system.

When thinking of ceramic and glass products, one initially thinks – perhaps for historical reasons – of earthenware, stoneware, and porcelain, but also of bricks, wall and floor tiles, and flat and container glass.

However, these materials are much less frequently associated with modern components such as brake discs, spark plugs, soot particle filters, magnets, dental ceramics, hip and knee joint prostheses, or piezoceramic components, for example, in mobile phones and inkjet printers. They can be found in all areas of daily life: ceramics in automotive engineering, mechanical engineering, electronics and electrical engineering, high-temperature technology, and, of course, in the home.

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Offerings from the Ceramics Technical School bbsmt Logo sm

## Training at the State Technical School for Ceramics Technology offer you?

The Ceramics Technical School in Höhr-Grenzhausen offers the opportunity for professional development leading to the qualification "State-Certified Ceramics Technician." The modern training concept is modular. Self-contained learning modules, each lasting approximately six weeks, allow you to focus on the key issues in ceramics and the professional skills to be developed by the ceramics technician.

This professional development program is therefore ideally suited for part-time training, with only a self-planned number of modules per year being completed. The qualification "State-Certified Ceramics Technician" can therefore be obtained in up to five years. Overtime, vacation days, and unpaid leave can generally be used for the school period. However, many companies already contribute significantly to the time and financial investment of further training in order to reliably secure their own skilled labor needs. The school will be happy to advise you on contractual options.

Full-time training is expected to complete after just two years of schooling. During this time, students are generally not employed by a company. Depending on their personal circumstances, however, they may be eligible for training support through the "Meister-BAföG" (subsistence support for full-time programs under the AFBG). Training at the school is characterized by small study groups and the associated personal and intensive support from all staff. We also value a warm atmosphere outside of class. Learn more about our school and contact us; we would be happy to advise you!

## What does training at the State Technical School for Ceramic Design offer you?

The focus is on your professional future, and your training is therefore strongly practice-oriented. Our goal is to foster your individual design ideas beyond the purely technical and to qualify you as a professional ceramic designer. We see your individual support as our primary task; the development of your individual design style is our primary focus.

In addition to professional design methods, we also teach you the fundamentals of aesthetic perception. Art history, design theory, and technical drawing complement the topic-oriented practical modules in the areas of vessel and surface design, as well as sculpture and design. Craft techniques in the field of architectural ceramics, free-throwing vessel casting, the creation of decorative designs, and plaster model and mold making provide you with the foundation for implementing your designs. In addition, you will acquire graphic computer skills and learn everything you need to know about presenting your ceramic products and running your own business.

To put this into practice, we offer you excellently equipped workshops and laboratory workstations, allowing you to conduct diverse experiments and work on extensive projects with a wide variety of ceramic materials and techniques. You will have your own workspace during your thesis.

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Would you like full-time or part-time training?

The modular system of our training allows you to gain higher qualifications even if you are already working. This means that your further training as a ceramic designer or ceramic technician can be completed either full-time in three years or part-time, integrated with your job, over five years. You also have the option of taking up to two modules for professional development.

## Our areas of expertise:

Functional ceramics  Structural ceramics  Additive technologies  Silicate ceramics

We are happy to support you in your projects with the practical introduction and implementation of innovative products and processes. We work competently, goal-oriented, and flexibly. Our fields of activity extend to the ceramics and glass industry as well as their user industries, such as the raw materials industry, the automotive and mechanical engineering sectors, the optical and lighting industries, medicine, and environmental technology.

Public research and contract research

Together with partners from industry and science, we conduct application-oriented research in publicly funded collaborative projects or within the framework of bilateral contract research.

Our services:

Public R&D collaborative projects:

Together with you, we drive innovation in the raw materials, glass, and ceramics industries!

## Bilateral contract research:

We work closely with you to understand your specific requirements and develop innovative solutions that meet your needs.

Funding opportunities:

We actively support you in finding funding opportunities for your projects, including innovation vouchers and other financing options.

Results orientation:

We always strive for excellent results and use our expertise to develop innovative solutions that offer real added value.

Supporting SMEs plays a key role for us. We are happy to assist you with your R&D project application.

Contact us to learn more about our services and find out how we can work together to achieve your innovation goals.

Technology transfer and consulting:

We share our technological knowledge with you.

The FGK cooperates closely with industrial partners to develop practical solutions. Through this collaboration, we ensure that our research results can be directly transferred into industrial applications. This helps strengthen companies' competitiveness and advance innovative technologies.

## Process optimization (OAP)

The FGK has developed the methodical OAP (Output Accepted Process) concept to optimize production processes and leverage internal company experience. It enables the reduction of scrap rates, the creation of a reliable testing concept, and the optimization of communication. OAP identifies potential along the process chain and implements targeted measures, including through comprehensive inventories and the use of statistical methods such as SPC.

For more information on how the OAP concept can support your company, contact us today. Let's work together to optimize your production processes and increase your efficiency.

Additive Manufacturing Competence Center

The 3D Ceramics Competence Center, funded by the Rhineland-Palatinate Ministry of Economic Affairs and the European Regional Development Fund, is the first of its kind in Rhineland-Palatinate for the additive manufacturing of inorganic materials. It offers innovative solutions for various industries through customized additive manufacturing. With its outstanding expertise in working with ceramic materials and its headquarters at the CeraTechCenter in Höhr-Grenzhausen, the 3D Printing Competence Center stands for advanced technologies and customized product solutions.

## Articles in Contact with Food

We offer customized consulting services and conduct tests in accordance with applicable food safety standards. Our expertise not only ensures compliance with legal regulations but also the highest safety standards for consumers. With our specialist knowledge, we support companies in developing and manufacturing products that meet demanding hygiene and quality requirements.

We test for you, among other things:

## Raw materials and industrial minerals

In our testing laboratory, basic chemical and mineralogical tests are carried out on natural, synthetic, and aqueous raw materials. Our expertise also lies in application-oriented specialized analysis of raw material properties, the development of sustainable concepts, and in-house quality assurance.

We test for you, among other things:

## Mechanical testing

Our facility is equipped to test the mechanical strength of ceramic materials. Through precise and accurate testing procedures, we provide in-depth insights into the resilience and stability of ceramic components.

We test for you, among other things:

## Thermal Analysis

Our company offers comprehensive services for the thermal analysis of ceramic materials. We have an experienced team of specialists and state-of-the-art equipment to perform a wide range of thermal analyses.

We test for you, among other things:

## Tiles

The FGK (German Institute for Ceramic and Ceramic Materials) is concerned with testing the functional properties of ceramic tile surfaces and their durability with regard to safety in use, in combination with cleaning and hygiene. Tests on tiles and floor coverings to evaluate the surface can also be carried out on-site.

We test for you, among other things:

## Microscopy

Our advanced microscopy technology provides precise insights into the structure and composition of ceramic materials and components, enabling you to gain in-depth analyses and insights.

We test for you, among other things:

Building Ceramics

Our institute has many years of experience in testing bricks, roof tiles, and clinker bricks, and we are experts in the field of building ceramics. Trust our expertise for reliable and comprehensive testing of your bonded and unbonded building materials.

We test, among other things, the following for you:

Bioceramics and Dental Ceramics

We offer a wide range of specialized analytical services in the areas of chemical, physical-thermal, and mechanical testing for your raw materials and materials for bioceramics and dental ceramics. We are happy to support you in your projects with the practical introduction and implementation of innovative products and processes.

## DAS BFZK – BILDUNGS- UND FORSCHUNGSZENTRUM FÜR KERAMIK

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Das Bildungs- und Forschungszentrum Keramik e.V. (BFZK) ist in Höhr-Grenzhausen mit seinen acht Institutionen, die auf den Gebieten der Forschung und Entwicklung, der Lehre, der Unternehmensgründung, der Gestaltung, Kunst und musealen Bewahrung der Historie tätig sind, ein Dachverband keramischer Institute und in seiner Konstellation europaweit einzigartig. Ziel dieses Netzwerkes ist es, dem Werkstoff Keramik in seiner vielfältigen Bandbreite die zunehmende Beachtung in Technik, in alternativer Energiegewinnung, in Medizin und Umwelt zukommen zu lassen.

Praxisnahe Forschung (FGK und ECREF), die Gründertätigkeit (CTC), die Lehre an der Hochschule (Ausbildung zum Bachelor und Master of Engineering »Ceramic Science«), der Fachschule (Staatlich geprüfter Keramik-Techniker, Keramik-Gestalter) sowie an der Berufsbildenden Schule sind eng miteinander verknüpft. Das Institut für Künstlerische Keramik und Glas (Bachelor und Master Ausbildung) und das Keramikmuseum, mit 5000qm Fläche größtes Europäisches Fachmuseum für Keramik in Historie und Moderne, sind Drehscheiben lokaler wie internationaler Präsentationen.

Für Studierende erleichtert das BFZK-Netzwerk den Zugang zu Praktika, bietet Anregungen für Schwerpunkt- und Diplomarbeiten und vielleicht sogar später den Einstieg in das Berufsleben. Die Industrie, von der Rohstoffproduktion bis zur Fertigung von Enderzeugnissen, nutzt diese Verknüpfung der BFZK-Einrichtungen für die eigene Weiterentwicklung. Von der Bildungs- und Forschungserfahrung zu profitieren und zukünftig auf die Forschungsleistung zurückgreifen zu können ist für alle Beteiligten ein Gewinn. Das BFZK ist ein Anknüpfungspunkt für weltweit tätige Absolventen in Bezug auf berufliche Kooperationen und Wissensaustausch. Gemeinschaftliche Projekte, Tagungen, Symposien, Seminare und Weiterbildungen werden veranstaltet.

**Galerie Kannofen Brand 2021**

**Ein Weltkulturerbe in Höhr-Grenzhausen: Der traditionelle Kannofenbrand.**
In unserer Galerie finden Sie Impressionen aus den 60 Stunden Kannofenbrand nach traditioneller Methode.




Diese tollen Aufnahmen des Events wurden vom Fotografen Helge Articus aufgenommen.