

## Course instructors

### Dr. Christoph Runde

General manager of the Virtual Dimension Center (VDC) and lecturer for virtual reality at the Heilbronn University of Applied Sciences.



[More information about Christoph Runde](#)

### Dr. Albrecht Gehring

Head of a competence center at Lauer & Weiss GmbH, a consulting engineering company in the field of virtual product development and lecturer at the Baden-Württemberg Cooperative State University (DHBW).



[More information about Albrecht Gehring](#)

### Detlef Haesner

Chef Executive Officer of usb Management Consulting and System Development GmbH with over 30 years of experience in the field of Product Lifecycle Management (PLM) in Aerospace projects.



[More information about Detlef Haesner](#)

### Christof Kindervater

Assistant Head of the Institute of Structures and Design of the German Aerospace Center (DLR) Stuttgart.



[More information about Christof Kindervater](#)

## Contact



Aerospace is a key driving force for new technologies. Many trend-setting innovations were developed in enterprises and research institutions belonging to the aerospace industry. Products must fulfil severe quality requirements and work reliable under extreme conditions. High-qualified employees are the base for success.

The ASA is an institute of Steinbeis University Berlin and provides a variety of specialized courses and professional trainings to allow companies to hone the skills of their employees and continuously build on their capabilities. Working with leading international experts, we provide in-sight into the very latest research and technological advances.

### German Aerospace Academy (ASA)

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### Steinbeis University Berlin (SHB)

Founded in 1998, Steinbeis University Berlin (SHB) is a state-approved private university that offers students and companies practice-oriented, extra-occupational higher education based on the project competence concept, leading to nationally recognized qualifications. The research carried out by SHB focuses on issues with practical applications. The SHB portfolio of courses ranges from certification courses to degrees and doctoral programs. SHB is an enterprise in the Steinbeis Network, an international service provider in entrepreneurial knowledge and technology transfer.

[www.steinbeis.de](http://www.steinbeis.de)



in cooperation with:

VIRTUAL DIMENSION CENTER



## CERTIFICATE COURSE Product Design and Development Tools



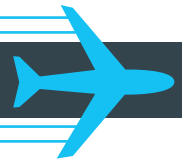
Investing in Opportunities



This project has received  
European Regional  
Development Funding  
through INTERREG IV B.



INTERREG IVB



## Target Audience

The course is targeted at managers and engineers, who are responsible for or advising in implementing new design and development tools and processes.

## Content

- Product Lifecycle Management (PLM)
- Computer Aided Engineering (CAE)
- Analysis of composite and lightweight constructions
- Crash simulation of composites
- Virtual Reality (VR)
- Virtual Mock-Up (VMU)
- High performance computing

## Benefits for the participant

- The course transfers theoretical and practical knowledge in product design and development tools.
- Participants obtain competencies in one of the most evolving fields in the manufacturing industry.
- Participants get a unique professional profile, which sets them apart from other managers.

## Benefits for the company

- Participants of this course obtain the expertise to lift the company to the state of the art in product development processes
- Participants enable informed decisions on future investments. They help saving costs both for product development and for production planning.
- Participants improve process efficiency and product quality, achieving the best customer satisfaction.

## Module 1: Product Lifecycle Management (PLM) (1 day)

- Product creating process: product development, manufacturing, resource planning
- Development master data, manufacturing master data, numbering system, versioning, variant management, views, product structure
- PDM and PLM fundamentals, system integration, PLM system architecture, PLM installations, PLM functions

## Module2: Computer Aided Engineering (CAE) for composites and light weight construction (1 day)

- Why digital simulation in product development, the role of CAE, simulation process sequence, CAE workflow, CAE process chain
- CAE methods (FEM, BEM, FVM, FDM, MKS, control systems)
- Material modeling, micro structure modeling, component strength simulation, fatigue, process simulation, computational procedures, mathematical methods

## Module 3: Crash Simulation of Composites (1 day)

- Deformation analysis of plastic and elastic parts, modeling
- Application fields, simulation results and value, limits of simulation
- Visualization of crash process

## Module 4: Visualization and Virtual Prototyping (1½ day)

- Virtual Reality (VR): fundamentals, human perception, benefits, applications
- VR systems, computer graphics, management issues
- Virtual mock-up (VMU): definition, physical mock-up, motivation, applications, dynamic VMU, functional VMU

## Module 5: Practical Training at the High Performance Computing Center Stuttgart (½ day)

- overview high performance computing (HPC)
- HPC and VR projects at HLRS
- visit of computing centre facilities and 4-sided CAVE

## Knowledge Transfer Project

Following to the course each participant works on a knowledge transfer project in his or her company to apply the theoretical knowledge gained in the seminars. The content of the project shall be an actual task from the daily work of the participant. One of the course instructors is a supervisor for the project. The knowledge transfer project is documented in a short written report and presented a few weeks after the course.

## Course Procedure

The certificate course includes 4.5 days of seminars, in the training rooms of ASA and 0.5 days of practical training at the High Performance Computing Center Stuttgart. A one-hour written test will be administered a few weeks after the seminars. Seminars contain lecture, group and single exercises as well as case studies with high practical relevance.

## Certificate

Upon successful completion and passing of the test, participants are awarded a certificate by the Steinbeis University Berlin. In addition, 5 internationally accepted ECTS credit points are awarded, which confirms the participation in this short study program. Grading is based on the written test and the knowledge transfer project.

## Admission Requirements

The course is open to participants from all technical disciplines (e.g. engineering, physics) with a Bachelor's degree and at least 2 years of work experience.

## Additional Information

Information about dates, application and registration can be found at [www.german-asa.de](http://www.german-asa.de).