



COURSE LEADER

Dr.-Ing. Markus Milwich

Dr. Milwich is a leading expert in the field of Fibre Reinforced Polymers for many years and an experienced lecturer. He is head of the Fibre Composite Materials division of the Institute of Textile Technology and Process Engineering (ITV) Denkendorf.

VENUE

For the three-day seminar
German Aerospace Academy (ASA)
Forum 1 am Konrad-Zuse-Platz 1
71034 Böblingen

For the practical training
ITV Denkendorf
Körschtalstraße 26
73770 Denkendorf (near Stuttgart)

The Institute of Textile Technology and Process Engineering Denkendorf conducts applied research along the whole production chain in close cooperation with international networks. Contracting bodies are industrial enterprises and large-scale service providers as well as the state. Their main goal is to convey scientific results to the industry. The ITV performs world-class research with the best in state-of-the-art competence.



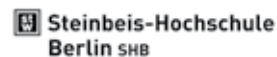
Aerospace is a key driving force for high-technology/new technologies. Many trend-setting innovations were developed in enterprises and scientific institutes belonging to the aerospace industry. Products must fulfil stringent quality requirements. They also have to work reliably and under extreme conditions. The base for the success are high-qualified employers.

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.

CONTACT

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Founded in 1998, Steinbeis University Berlin (SHB) is a private, state-approved university that offers students and companies practically-oriented degree programs that dovetail with full-time employment. It also conducts research into issues related to business practice. The SHB portfolio includes certification courses, degrees and PhD programs, all recognized by the German state. The SHB is an enterprise in the Steinbeis Network, which operates throughout the world in the field of application-based knowledge and technology transfer.

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Steinbeis Certification Course

“Fibre Reinforced Polymers”





Certification Course: Fibre Reinforced Polymers

TARGET AUDIENCE

This course is intended for graduate and advanced engineers, managers and professionals who are interested in gaining or extending their knowledge in the field of Fibre Reinforced Polymers (FRP). It is equally suitable for specialists to broaden their knowledge base and for newcomers in this domain.

CONTENT

This 4 day certification course gives an insight into state of the art methodologies, technologies and its applications in Fibre Reinforced Polymers. It is covering a selected range of key topics associated with practical experience in this field. The three-day seminar is supplemented by a one-day practical training at the Institute of Textile Technology and Process Engineering (ITV) Denkendorf (near Stuttgart).

The Course Fibre Reinforced Polymers is divided into the following modules:

M 1: Introduction

- Definition, applications, motivation, challenges
- Examples, history

M 2: Basic Materials

- Mineral and natural reinforcing fibres
- Matrices: thermoset, thermoplastic
- Core materials: Foam, honeycombs, wood, textiles

M 3: Production of thermoset-matrix composite parts: wet lay-up, Vacuum bagging

- Wet lamination / hand lay-up
- Vacuum bagging and autoclave technology
- VARI: resin infusion with Vacuum bagging
- VAP: process variant of the VARI technique

M 4: Prepreg techniques

- Unidirectional (UD), woven fabric or braided thermoset
- Chopped Fibre thermoset (SMC) and thermoplastic (GMT)

M 5: Thermoset-Impregnation and Consolidation of fibre mats and textiles

- Resin Transfer Moulding (RTM)
- Reaction Injection Moulding (RIM)

M 6: Production of textiles

- 2D-Techniques: Weaving, Braiding, Knitting
- 3D-Techniques: NCF's, 3D-Weaving, 3D-Braiding
- Gradient Techniques: Tow and Tailored-Fibre-Placement

M 7: Direct Techniques

- Winding, Fibre/Tow Placement, Centrifuge technique
- Braiding, Injection moulding, Pultrusion
- DLFT, DLFT-IMC

M 8: Finishing, cutting processes, connecting technique

- Cutting processes, finishing: Water Jet, Laser and mechanical cutting
- Connecting techniques, repair: Pin joints, gluing, welding, clinching, nailing, punch riveting

M 9: Recycling

- Glass fibre FRP
- Carbon fibre FRP

M 10: Practical Training at the ITV in Denkendorf

- Detailed hands-on information of textile processes: spinning, braiding, weaving, nonwoven, comingling
- Hand lay-up and vacuum bagging
- Live Pultrusion processing
- Thermoset and thermoplastic matrix processing
- Static and dynamic testing methods and components

CERTIFICATE

After successful completion of the certification course by a written test, the participant will receive a certificate of the Steinbeis University Berlin, signed by its president. The grading of the certificate will be based on the results of the written test. The course will be credited with 2 internationally accepted credit points.

COSTS

Offering price **2.450,- Euro (plus tax)**
The fee includes lunch, coffee / tea and biscuits during breaks.

ADMISSION REQUIREMENTS

This certification course is open for all participants with a technical background or interest.

WIN-WIN-SITUATION...

...Benefit for the participant

- You will gain essential competences in the innovative and trend-setting technology of FRP
- You will enhance your career opportunities with the certificate of the Steinbeis-University
- You will be attested high theoretical and practical knowledge by the certificate

...Benefit for the company

- The company will be supported in its pursuit of sustainability and professionalism
- The company will get a variety of opportunities to run new product developments by adapting FRP technologies
- The company will directly profit from the personnel skilled in theory and practice of FRP applications