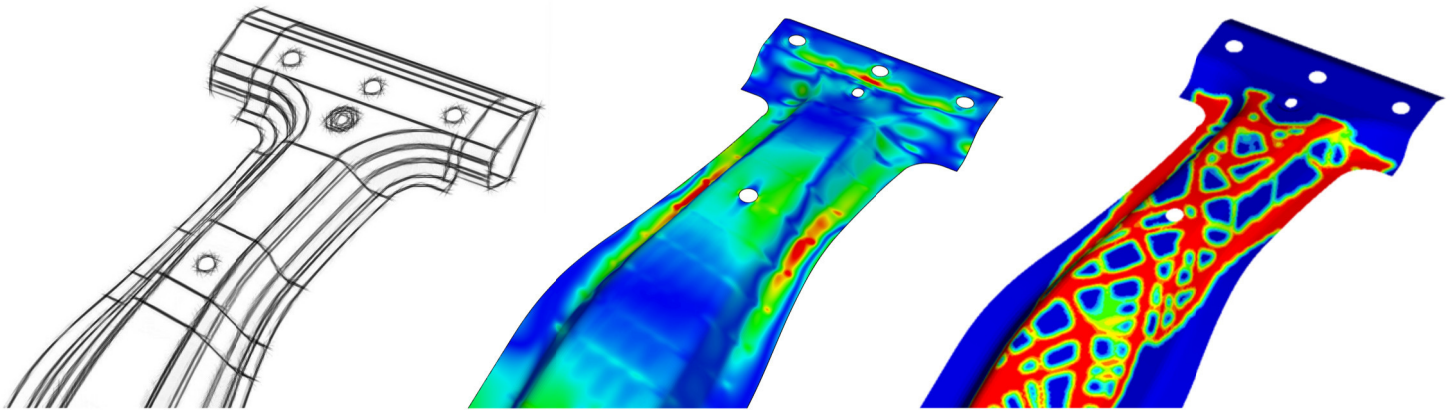




SIMUTENCE

Virtual Composite Solutions

Engineering Services for Innovative Lightweight Solutions



Product development with
fiber-reinforced composites and hybrids

Virtual validation and optimization
of manufacturability

Design optimization for
innovative lightweight solutions

Composite-specific redesign
of existing parts or assemblies

Innovative lightweight design requires the smart combination of large-scale process technologies, high performance materials and advanced methods for the Virtual Design.

SIMUTENCE is specialized in advanced methods for the Virtual Design of fiber-reinforced composites and hybrids, offering independent engineering services.

We supply and support product developments along our Virtual Process Chain, which enables to generate a Digital Twin of the part to be developed and manufactured.

Thereby, our expertise in process simulation enables us to validate virtually the manufacturability and to predict manufacturing effects for process technologies and materials relevant for large-scale production. Based on this, the effort on prototyping and process design can be reduced.

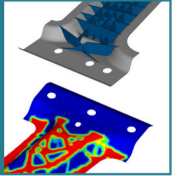
Virtual Product Development

Virtual product development for us includes the generation of a Digital Twin. For this purpose, our Virtual Process Chain predicts and retains information on the part's properties. This includes the numerical design optimization for new concepts, process simulation for validation of manufacturability and manufacturing effects, warpage simulation to guarantee dimensional stability and structural simulation to ensure the required part performance. Thereby, arbitrary software packages can be plugged in by means of neutral exchange formats.

Upon request, we develop products from the initial idea to the final design. If required, we also support with single steps of our Virtual Process Chain. Doing so, we rely on our long-year expertise in the field of design, numerical optimization and simulation.

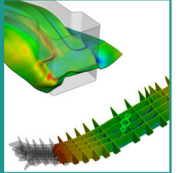
Design & Optimization

Material and process specific product design



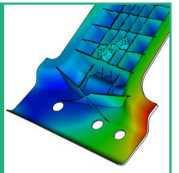
Process Simulation

Prediction of manufacturability and manufacturing effects



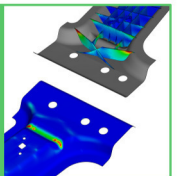
Warpage Simulation

Prediction of solidification, warpage and residual stresses



Structural Simulation

Analysis of structural part performance



Focused Process Technologies

We focus on process technologies for fiber-reinforced composites and hybrids relevant for large-scale production. Thereby, we rely on a mixture of state of the art and specially developed simulation approaches, implemented by means of add-ons for established simulation software. Herewith, we improve the state of the art of simulation when necessary.

MuCell®



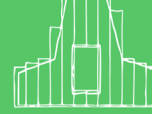
Thermoplastic Injection Molding



Winding Overmolding



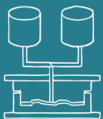
Thermoforming



Hybrids (LFT & UD-Tape)



Resin Transfer Molding



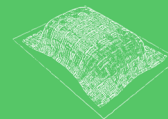
Thermoset Injection Molding



LFT Compression Molding



Textile Draping



SMC Compression Molding



State of the Art

SIMUTENCE Approach



We are looking forward to your challenges!
Get in contact with us.

www.simutence.de

info@simutence.de