

DATES AND REGISTRATION

For current information, please check our website:
www.composite-engineer.de

CONTACT



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Central registration

Training Center for Fiber Composite Technology
Fraunhofer Institute for Manufacturing Technology
and Advanced Materials IFAM
Wiener Strasse 12 | 28359 Bremen | Germany

Register online via www.composite-engineer.de
or via phone, fax or email:

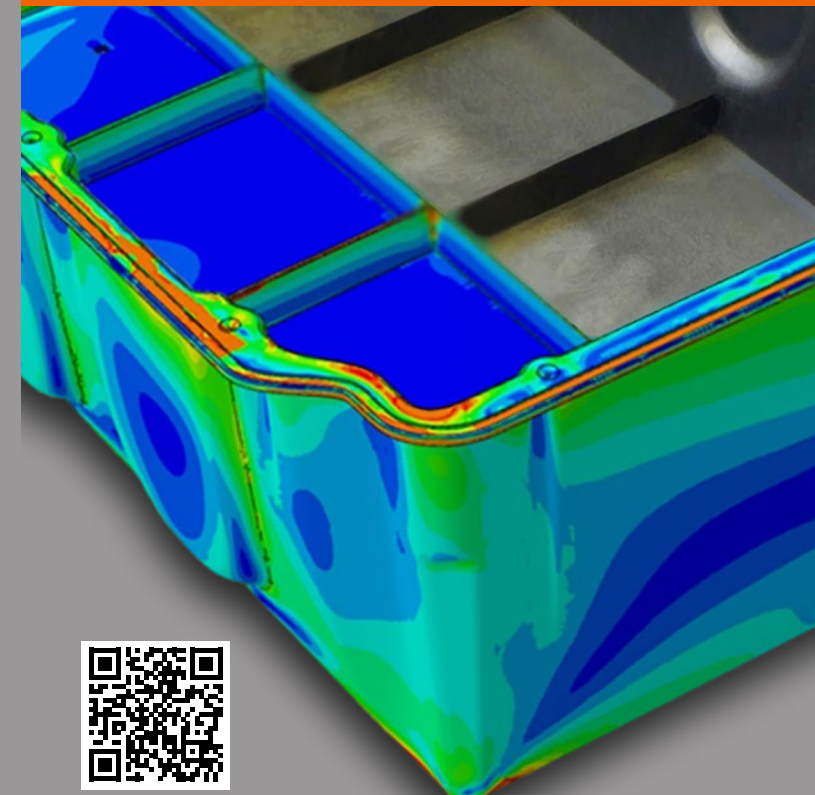
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*Cover picture: Box made of Long-Fiber-reinforced Thermoplast (LFT) © Fraunhofer IWM,
outside left: Laser supported Automated Tape Laying (ATP) © Fraunhofer IPT,
outside center: panel painting © Fraunhofer IFAM, inside center: LFT © Fraunhofer LBF*

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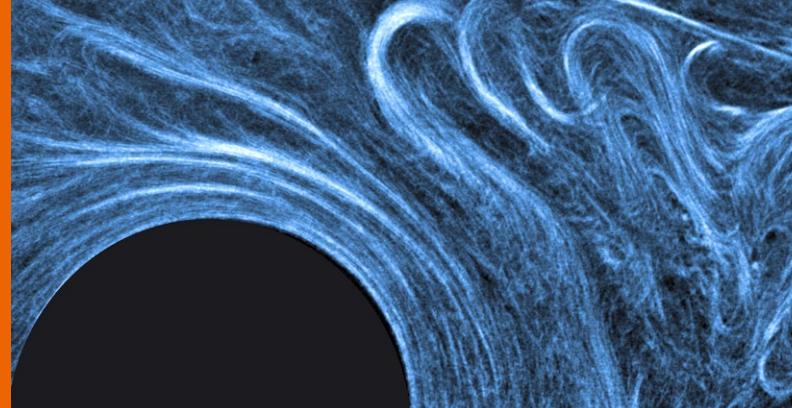
COMPOSITE ENGINEER

Modular professional training



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Background

Since 2016 the Fraunhofer Lightweight Design Alliance offers the professional training course “Composite Engineer” in cooperation with the Fraunhofer IFAM. The course participants are trained on particular topics by scientists and engineers who are engaged in current, cutting-edge R&D work in the field of composite materials. This guarantees direct transfer of key knowledge and technology to the industry. Due to a growing international demand, this course will be available in English from autumn 2019.

Required knowledge for participation and objectives of the training course

Target groups are engineers, scientists and also qualified technical employees in all disciplines and sectors of industry, who either currently work with composites or wish to do so in the future. Participants for the “Composite Engineer” course must have either:

- successfully completed a professional qualification and have at least five years technical work experience
- successfully completed an engineering or science course (Bachelor degree or higher) at a university or technical college.

The Composite Engineer training course qualifies people to supervise the whole life cycle of a composite product. This

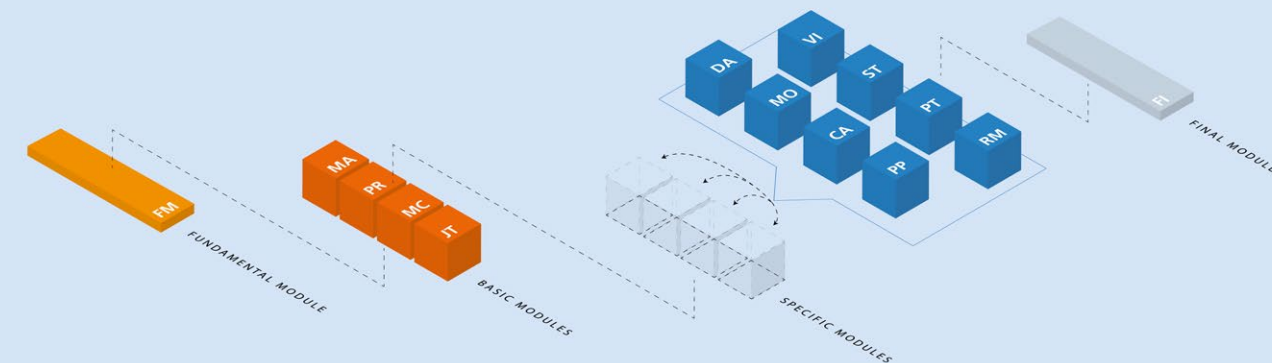
covers product development, manufacture, and repair and involves interdisciplinary thinking, evaluation, decision-making, and actions relating to effective usage of composite technology.

Course content, duration and examinations

The Composite Engineer course is modular. Each module lasts three days. The Introductory Module and the four Basic Modules are compulsory. The participants take four Specific Modules of their own choice. Each of the Specific Modules ends with a written examination. A certificate of attendance from the Introductory and Basic Modules and successfully passed examinations for the Specific Modules are prerequisites for taking the final oral examination. Passing the final oral examination results in the award of a certificate as “Composite Engineer”. The final oral examination is preceded by a two-day revision session, the so-called Final Module. The training course thus extends over a total of 30 days (6 weeks / 240 hours).

All the modules can also be booked individually by people not intending to take the full Composite Engineer training course.

For detailed information about the different modules, please check our website: www.composite-engineer.de



	Location		Location
Fundamental Module (compulsory)			
IM Fundamental Module	Bremen	ST Surface Treatment and Analysis	Darmstadt
Overview of the whole life cycle of a composite component		Surfaces and their properties - adhesive and cohesive forces – methods for surface characterization – FRP relevant surface preparation	
Basic Modules (compulsory)			
MA Materials	Bremen	CA Characterization and Assessment	Darmstadt
Fibers – thermoset and thermoplastic matrix systems – textile semi-finished products – prepregs		Component requirements and classification – damage and failure mechanisms – nondestructive testing and failure analysis – destructive testing for the determination of mechanical properties	
PR Processing Technologies	Bremen	PT Manufacturing and Production Technologies	Darmstadt
Processing technologies for thermoset and thermoplastic FRP-components		Manufacturing methods and process chains in FRP component manufacture - selection of suitable process routes depending on material, manufacturing method, design, product requirements, cost efficiency and quantity	
MC Machining	Bremen	PP Proof Testing and Test Philosophies	Darmstadt
Machining with geometrically defined and undefined cutting edge – laser cutting – waterjet cutting		Determination properties and failure loads – experimental proof of function and safety – typical defects and inspection tasks of nondestructive testing	
JT Joining Technologies	Bremen	RM Recycling and Maintenance	Darmstadt
Adhesive bonding – mechanical joining – thermal methods – laser welding – hybrid joining		Repair methods – nondestructive test methods – recycling concepts for FRP's – Reuse of recycled carbon fibers	
Specific Modules (compulsory elective)			
DA Design and Architecture	Darmstadt	More specific modules are currently in development covering the fields of multi-material-design, ceramic based composite materials, short-fiber composites and production system design and evaluation methods.	
Lightweight design principles – methods and guidelines		Final Module	
VI Vibration Reduction and Functional Integration	Darmstadt	FI Repetition and Examination	
Vibration measurement – measures for vibration reduction – vibration simulation – structural monitoring		Bremen	
MO Modeling and Simulation	Darmstadt	Repetition and summary of the Fundamental and Basic Modules – examination by certification body	
Design philosophies – structural design – numerical simulation – FEA – failure mechanisms and criteria			