TUD Dresden University of Technology

Institute of Textile Machinery and High Performance Material Technology (ITM)

About this organisation

The Institute for Textile Machinery and Textile High Performance Materials Technology at TU Dresden is a world-leading university research institution in the field of textile technology along the entire process chain. For the successful implementation of its diverse research projects, the ITM has a modern infrastructure that enables the rapid development of completely new technologies and innovative products.

The research activities at the ITM are focused on the areas machine, technology and product development and include development and processing of high-tech fibres made of carbon, glass, aramid, steel and ceramics. The research activities are complemented by modelling and simulation of structures and processes and include development of novel yarn constructions, 2D and 3D reinforcement semi-finished products, finishing and functionalisation.

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01069 Dresden
Saxony
Germany
tu-dresden.de/ing/maschinenwesen/itm

Organisation type
University or higher education institution

Sectors
Others: Textilmaschinenbau, Textiltil- und Konfektionsindustrie

Employees
50 up to 249

Turnover
n/a

Funding

Technology Transfer Program Leichtbau

Projects in the funding catalogue

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Main areas covered	Textile machine development, 2D/3D reinforcement textiles, Structure and process simulation, Preform production, Textile-integrated sensors/actuators
Infrastructure	Technical Centre Textile Processes , Technical Centre Preforming, Technical Centre Fibre-Plastic Composites, Technical Centre Testing, CAE laboratories
Certifications	
Keywords	
Memberships	Composites United e. V.

Overview of lightweighting expertise

	Research	Development	Manufacturing & Supply
Offer			
Products Parts and components, Semi-finished parts, Machines and plants, Materials	✓	✓	
Services & consulting Training, Consulting, Testing and trials, Validation, Simulation	✓	✓	

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Overview of lightweighting expertise

	Research	Development	Manufacturing & Supply
Field of technology			
Design & layout Hybrid structures, Lightweight material construction	✓	✓	
Functional integration Actuator technology, Sensor technology, Material functionalisation	✓	✓	
Measuring and testing technology Component and part analysis, Visual analysis (e.g. microscopy, metallography), Materials analysis, Destructive analysis, Non-destructive analysis	✓	✓	
Modelling and simulation Loads & stress, Processes, Structural mechanics, Materials	✓	✓	
Plant construction & factory automation			
Recycling technologies Recycling, Others: null	✓	✓	

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Overview of lightweighting expertise

	Research	Development	Manufacturing & Supply
Manufacturing process			
Additive manufacturing 3D printing, Others: null	✓	✓	
Coating (surface engineering) Plasma process, Others: null	✓	✓	
Fibre composite technology Casting (concrete), Manual lamination, Resin infusion process, Resin transfer moulding, Vacuum infusion, Others: null	✓		
Forming Others: null	✓	✓	
Joining Adhesive bonding, Sewing, Welding	✓	✓	
Material property alteration Others: null	✓	✓	
Primary forming Others: null	✓	✓	
Processing and separating Others: null	✓	✓	
Textile technology Fibre manufacturing, Braiding, Yarn & roving production, Preforming, Knitting, Textile surface treatment and finishing, Weaving, Knitting, laid web production, Others: null	✓	✓	

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Overview of lightweighting expertise

	Research	Development	Manufacturing & Supply
Material			
Biogenic materials Biocomposites, Others: null	✓	✓	
Cellular materials (foam materials) Others: null	✓	✓	
Composites Aramid fibre composites, Basalt fibre-reinforced plastic, Glass-fiber reinforced plastics (GFRP), Ceramic matrix composite (CMC), Carbon-fiber reinforced plastics (CFRP), Metal-fibre-polymer composite, Metal matrix composite, Textile-reinforced concrete	✓	✓	
Fibres Aramid fibres, Basalt fibres, Glass fibres, Ceramic fibres, Carbon fibres, Metal fibres, Natural fibres, Others: null	✓	✓	
Functional materials Shape memory materials, Others: null	✓	✓	
Metals Others: null	✓	✓	
Plastics Thermoset plastics, Elastomers, Thermoplastics	✓	✓	
Structural ceramics Others: null	✓	✓	
(Technical) textiles Yarns, rovings, Meshes, Laid webs, Crocheted fabrics, Woven fabrics, Knitted fabrics, Nonwovens, mats, Others: null	✓	✓	

Contacts

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Contacts

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