



CENTER FOR COMPOSITE MATERIALS
AT THE UNIVERSITY OF DELAWARE

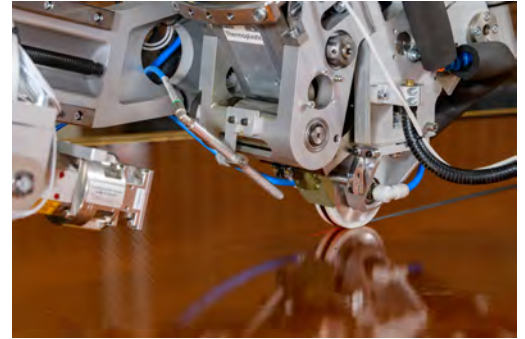
CAPABILITIES

2026

ADVANCED MANUFACTURING

Integrated processing and production technologies for high-performance composite manufacturing at rate and scale.

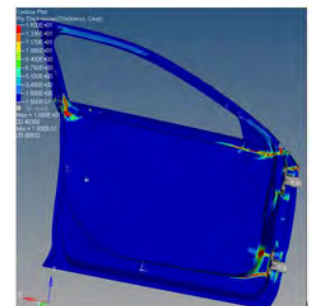
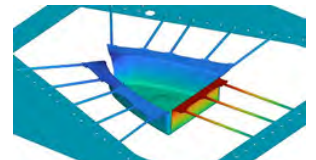
- **Automated Tape Placement** – High-precision, automated fiber placement for optimized structural components.
- **Composites & Prepreg Processing** – Comprehensive autoclave and out-of-autoclave (OOA) curing and processing.
- **Liquid Molding & Pultrusion** – Scalable, high-rate manufacturing methods for complex and continuous profiles.
- **Polymer Extrusion & Processing** – Advanced material formulation including nanostructured composites.
- **Precision Machining & Tooling** – Dedicated CNC, composite-specific, and general machining for exact tolerances.
- **Sample Preparation & Testing Support** – Specialized ovens, presses, and conditioning for prototype readiness.



DESIGN ANALYSIS

Integrated design, simulation, and validation to optimize performance and accelerate product development.

- **CAD/CAM/CAE** – Digital design, engineering, and manufacturing integration.
- **Modeling & Simulation** – Predictive analysis for performance and manufacturability.
- **Structural Analysis** – Virtual evaluation of strength, stiffness, and durability.
- **Digital Validation** – Data-driven verification of design and manufacturing decisions.
- **Design Optimization** – Material and geometry selection for improved performance.



Discovery Development Deployment

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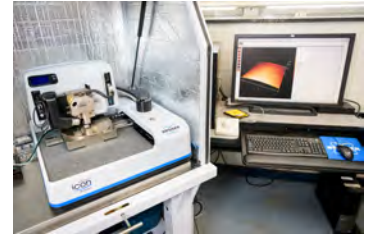
101 Academy Street
Newark, DE 19716

CAPABILITIES

MATERIAL CHARACTERIZATION

Advanced material insights, performance validation, and lifecycle reliability.

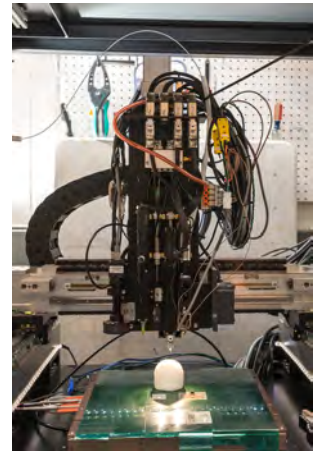
- **Mechanical Testing** – Fatigue, high-strain rate, impact, and static testing for structural performance.
- **Environmental Exposure** – Accelerated aging and hot, cold, and wet environmental simulation.
- **Fibers & Interface** – In-depth evaluation of constituent bonding and composite behavior.
- **Thermal & Polymer Analysis** – Precision characterization of thermal properties and polymer behavior.
- **Microstructure Exploration** – High-resolution analysis of material composition and structural integrity.
- **Nondestructive Evaluation** – Advanced NDT/NDE inspection to identify flaws without component damage.
- **Oven Facilities** – Controlled thermal conditioning and processing capabilities.



ADDITIVE MANUFACTURING

Complex geometries, integrated electronic functionality, and rapid prototype iteration.

- **Multimaterial Manufacturing** – Integrated polymer and composite systems with tailored material properties.
- **Hybrid Printed Electronics** – Seamlessly embedding electronic functionality into structural components.
- **Polymer Printing & Vat Polymerization** – High-precision DLP fabrication for intricate geometries and rapid development.
- **Fused Filament Fabrication** – Durable, cost-effective, and structural component production.



Discovery Development Deployment