Georgia Tech Launches Manufacturing Institute

Georgia Institute of Technology

To support a new industry-friendly research strategy, the Georgia Institute of Technology announces the launch of an interdisciplinary research institute to promote a technologically advanced and globally competitive manufacturing base in the United States.

The Georgia Tech Manufacturing Institute (GTMI) creates a campus-wide community of investigators and thought leaders capable of using innovation in manufacturing to create more high-value jobs in the U.S., ensure the nation's global competitiveness and advance economic and environmental sustainability.

"Manufacturing is important to the development of a variety of products, from medical devices to alternative energy solutions to cars, on the large and nano scale," said Ben Wang, Georgia Tech's chief manufacturing officer and executive director of the Georgia Tech Manufacturing Institute. "It's critical to the economic viability and competitiveness of our nation to efficiently move leading-edge research from the lab to the real world."

Since Georgia Tech was founded in 1888, manufacturing has been ingrained in the curriculum. Also for the last 20 years, the Georgia Tech Manufacturing Research Center has been focusing on developing next-generation technologies.

Under this new initiative, the Manufacturing Research Center has been renamed the Georgia Tech Manufacturing Institute and has expanded to engage researchers from all of Georgia Tech's colleges, the Enterprise Innovation Institute (EI²) and the Georgia Tech Research Institute. The researchers have joined forces with industry and government experts to help define and solve some of the greatest challenges facing the manufacturing industry today, such as the importance of translational research.

"We aspire to be known globally as the collaborative hub for manufacturing technologies and as the recognized leader in crossing the 'valley of death,'" Wang said. "By that, we mean to transform the research results by faculty and students into competitive products and services to be made in the U.S. Our success is defined by how fast we can translate these discoveries and innovations into products for our stakeholders, accelerating our readiness and providing translational leadership."

GTMI will focus on the complete innovation value chain – from raw and recycled resources to prototypes and finished products. It will develop materials, systems, processes, educational offerings and policies that impact manufacturers' performance in the marketplace.

"GTMI is industry-focused and customer-centric, amplifying Georgia Tech's

reputation globally as the world's leader in innovation-driven manufacturing," Wang said.

With roughly 400,000 square feet of space and state-of-the art core facilities for manufacturing research, GTMI will target specific industry needs in manufacturing by forming "collaboratories" – co-located pilot plants or prototype shops where Georgia Tech scientists and engineers work side-by-side with their counterparts from industry, government and other universities.

"By implementing best practices to develop outward-facing, collaboration-based programs of the highest impact, we are focusing on understanding and achieving the value propositions of all stakeholders to better define and deliver offerings to companies, government, other universities and colleges, and non-profits," Wang said. "By doing so, we will maximize U.S. global competitiveness through accelerated innovation and technology deployment."

Education is also a priority of the new manufacturing research institute. With top-quality researchers, facilities and technological equipment, GTMI aims to educate and train the workforce of the future to investigate, collaborate and compete successfully through both its on-site programs and via collaborative, manufacturing-based instructional programs in technical colleges. In addition to providing real-world research opportunities to undergraduate and graduate students, GTMI offers a manufacturing certificate program, manufacturing scholarships and student assistantships, and it conducts Science, Technology, Engineering, and Math (STEM) outreach activities.

GTMI brings together many of Georgia Tech's world-class innovation activities including:

- **Additive Manufacturing** [1]: Using innovative direct digital manufacturing to improve cost structure and delivery lead-time in creating mechanical parts and electronic devices.
- **Factory Information Systems** [2]: Developing, testing and launching innovative software and technology that boosts manufacturing efficiency.
- **Model-based Systems Engineering** [3]: Applying software and electronics innovations to create analytic models that predict system performance, optimize system parameters and create knowledge repositories for future systems development.
- **Policy**: Understanding industry needs and promoting supportive policy to ensure the strength and viability of U.S. manufacturing competitiveness in the global marketplace. Using a multi-scale, multi-disciplinary approach enables Georgia Tech experts to see beyond traditional boundaries and to better understand where policy interventions can develop, support and sustain a resilient manufacturing base.
- **Precision Machining** [4]: Researching and applying technologies for enhanced productivity, part quality, difficult-to-machine features and machine tool utilization of precision finishing processes.
- **Supply Chain and Logistics** [5]: Applying scientific principles to optimize

the design and integration of supply chain processes, infrastructure, technology and strategy including developing new analysis, design and management tools, and concepts and strategies.
- **Sustainable Design** [6]: Developing materials, processes and systems for implementing and operationalizing sustainability.
- **Ultra-lightweight, Energy Efficient Materials and Structures**: Using rigorous experimental and modeling R&D to advance and mature technology in aerospace, biomedical, defense, energy and industrial equipment.

The launch of GTMI compliments Georgia Tech's presence in the national discussion on manufacturing. Georgia Tech President G. P. "Bud" Peterson is a member of the White House's Advanced Manufacturing Partnership steering committee and is a member of the Secretary of Commerce's National Advisory Council on Innovation and Entrepreneurship.

The Georgia Tech Manufacturing Institute is one of several interdisciplinary research institutes at Georgia Tech that bring together a mix of researchers – spanning colleges, departments and individual labs – around a single core research area.

Related Links

- Georgia Tech Manufacturing Institute [7]
- Research@Tech [8]

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