

FOR IMMEDIATE RELEASE**City Tech Professors Awarded \$569,635 National Science Grant to Support Manufacturing and Materials Science Teaching, Curriculum Development, and Research**

Brooklyn, NY – March 21, 2023 – New research and collaboration at [New York City College of Technology \(City Tech, CUNY\)](http://www.citytech.cuny.edu/) are underway this year thanks to a National Science Foundation (NSF) grant of nearly \$570,000 awarded to a team of researchers led by [Dr. Gaffar Gailani](#), professor and Director of the Center of Medical Devices and Additive Manufacturing. The funding will support a three-year project aimed at technician training for advanced manufacturing and materials.

"This project is a natural extension for the Advanced Center of Medical Devices and Additive Manufacturing which was established six years ago as a result of NSF and NASA support," said Dr. Gailani, the principal investigator who led the initiative for the grant.

In addition to Dr. Gailani, the proposal was developed by [Dr. Denise H. Sutton](#) of the [Department of Business](#); three members of the City Tech [Department of Mechanical Engineering](#), [Dr. Sidi Berri](#), [Dr. Akm S. Rahman](#), and [Dr. Angran Xiao](#); and Dr. Nikhil Gupta of the NYU Tandon School of Engineering.

Funded through 2025, the \$569,635 grant project will help introduce new content for existing design, manufacturing, and materials science courses, including virtual and hands-on experiential learning exercises as well as tutorials on specific topics. A Business and Industry Leadership Team will provide feedback on course content so that the courses are aligned with the needs of the industry.

"This NSF grant will provide new equipment and collaborations with industry, to assure the curriculum in our Mechanical Engineering Technology and Industrial Design programs incorporate the most-up-to-date advanced manufacturing technologies, which are in high demand in the workforce. Hands-on experiential learning is at the core of a City Tech degree," said [Dr. Pamela Brown](#), Provost and Vice President for Academic Affairs.

A new summer training program will provide training on professional skills including communication, teamwork, and time management skills. This program will also help students develop better problem-

solving skills and learn how to conduct experiments and analyze data to obtain meaningful results. The project team will assess the impact of project activities on student learning and retention using student surveys, assessments of student work, and student interviews. This evaluation work will be conducted by [Dr. Deborah Hecht](#) from the [Center of Advanced Studies in Education](#) at CUNY.

The proposal's originators aim to address the industry's workforce needs for skilled technicians who have training in advanced manufacturing technologies including computer-aided design, additive manufacturing, and engineering materials. This project will use the Business and Industry Leadership Team model to collaborate with the industry and develop course content that addresses the knowledge, skills, and abilities that manufacturers need to implement and maintain these technologies.

For example, City Tech will be able to invest in new equipment for Selective Laser Sintering (SLS), a type of 3D printing technology used to produce parts and prototypes from powdered materials. In this process, a high-power laser is directed onto a bed of powder material such as nylon, metal, or ceramics, and then selectively fuse the particles together and build up an object layer by layer.

"Selective Laser Sintering (SLS) is a very advanced manufacturing technology this project will bring to City Tech," noted Dr. Gailani. "Few colleges have this technology in their labs because it is very expensive."

Other equipment being made possible under this grant includes City Tech's acquisition of a Coordinate Measuring Machine (CMM), a precision inspection system for accurately measuring the physical geometry of dimensions and tolerance.

Beyond student opportunities and new equipment for City Tech's facilities, the grant will also help build new partnerships with nearby research institutions. Graduate and undergraduate students from the neighboring New York University Tandon School of Engineering will be actively involved in this project.

"The project will initiate collaboration with the Navy Yard Industrial Complex, with the hundreds of companies that are housed in the Yard, and will have a research lab inside the Complex that will allow more interaction with those companies," said Dr. Gailani.

The grant also covers City Tech work to improve the mechanical properties of parts produced by additive manufacturing at the Center for Functional Nanomaterials, a science laboratory specializing in nanoscale research the U.S. Department of Energy's (DOE) Brookhaven National Laboratory on Long Island, New York.

One initiative already launched from this grant is the debut of City Tech's first [Smart Tank Competition](#), an opportunity for student teams from all academic departments to compete for \$2,500 by pitching creative problem-solving ideas in any industry.

"This project is distinguished by participation and collaboration between the Business Department at City Tech and the Department of Mechanical Engineering Technology," said Dr. Gailani. "The Smart Tank Competition is a critical component of this project."

This project is funded by the NSF's Advanced Technological Education program that focuses on the education of technicians for the advanced technology fields that drive the nation's economy.

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New York City College of Technology

Founded in 1946, New York City College of Technology (City Tech) is the designated college of technology for the City University of New York (CUNY). City Tech offers 27 associate and 31 baccalaureate innovative, cutting-edge degree programs spanning the technologies of art and design, architecture, biomedical informatics, business, career and technology teacher education, computer systems, engineering, entertainment, health care, hospitality, human services, the law-related professions, and the liberal arts and sciences. Located at the foot of the Brooklyn Bridge in Downtown Brooklyn, City Tech is a national model for industry-aligned education. For more information, visit www.citytech.cuny.edu.